Windows XP

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Microsoft's

NEW

Operating System

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Microsoft

For PC and Notebook Windows, or XP and other Windows Me and earlier versions.

Windows xp
Home Edition

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Using Windows XP

Introducing Windows XP

5 Well, it's finally here. Microsoft's latest operating system is robust, stable, intuitive, and visually stunning. Or else it's cartoonish, overpriced, and overly complex; a bogus kludge that will make insatiable demands for resources. Which is it? We steer clear of the hype and hyperbole, the nitpickers and the naysayers, and help you decide if Windows XP is right for you.

Using Windows XP

24 Time to get down to the nitty-gritty. We explain how Windows XP is different from previous Windows operating systems, what to expect, and how to use the new features. Think of it as a guided tour, but without the irritating tour guide.

Using Windows XP

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80 Wondering how to use XP's built-in firewall? Whether the system's keyboard shortcuts have changed? How to personalize XP? The best ways to use the new Camera & Scanner Wizard? We show you how to put the system through its paces and how Windows XP can help you accomplish your everyday computing tasks.

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Web Only

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Meet Windows XP

New Release Offers Improved Features & Stability

You may already know that the XP in Windows XP stands for "Windows experience." Some of you may have already shelled out $99 for the upgrade ($199 for Professional Edition), drawn in by the promises of greater stability than Windows Me, or other similarly enticing tales. If you haven't already purchased a copy, you may be wondering if the newest release from the house of Gates is worth the money, time, and effort to install.

If this is the case, we're pleased to provide a formal introduction to the newest member of the Windows family. And even if you've already purchased the product, you'll find many useful tips and information in this issue that should help you take full advantage of all the new features in WinXP. Before we get into the product specifics, however, let's first clarify for the newer computer users among us just what the hoopla is all about.

▋ What's An Operating System? Simply put, an OS (operating system) is the low-level computer program that interacts with your computer hardware to enable it to run software applications (word processors, games, spreadsheet applications, etc.). In a sense, the computer by itself is a clean slate with no innate ability to do anything. The OS gives the computer the ability to communicate with external devices (such as your CD-ROM drive), load programs into its memory from your hard drive, and

execute (or run) those programs. Without this functionality, your computer would be incapable of doing anything useful.

A picture is worth a thousand words. OSes come in two major flavors: command line and GUI (graphical user interface). Command line OSes are those that accept cryptic text statements like "dir c:*.* /s /p" and turn them into something usable, like a listing of all files on the hard drive one page at a time. MS-DOS, the ancestor of the current WinXP, was such a system. (And some variants of Unix still use a command line interface.) Although they may

seem archaic and complex to those who have never used them, command line OSes are actually quite powerful. Even in this modern age of Windows, we admit to sometimes executing simple statements in the old MS-DOS command language; to us old-timers, it just seems easier and faster than messing with mice, clicking on icons, and the like. We're sure this will horrify those of you who have never used MS-DOS, while those of you who have used DOS will most likely shake your heads a little and smile.

The problem with command line OSes is that they're not very intuitive. With the advent of personal computers, learning the cryptic statements that controlled the computer became something of a challenge to one's intellectual ability and honor. An elite subclass of people quickly developed: those who could understand and work with the OS. They worked their magic with very little conversation, usually with one or two confused users looking over their shoulder. This, however, was not the way personal computing was supposed to be. For it to be truly personal, the OS should be as easy to use as the applications that run on it. With this idea in mind, the folks at Xerox's PARC (Palo Alto Research Center) gave birth to the GUI.

The folks at Xerox were the first to bring together the fundamental elements of what we now call the GUI: a graphical display, a mouse to point and click with, and the concept of graphical windows that opened up and could be moved

around the screen. These features were introduced in 1973 with the creation of the first Xerox Alto computer; in 1981 Xerox produced a commercial version of the Alto called the Star. Although these concepts were truly revolutionary, it took Apple to make them a commercial success. In 1983 Apple introduced the Lisa, a personal computer with a GUI inspired by the work at Xerox PARC. Although there is some contention about who invented what first, it was clear that the fundamental concepts first developed by Xerox had been incorporated into the Lisa. Although the Lisa did not sell well, it paved the way for the 1984 success of the Apple Macintosh, the first computer with a GUI to achieve commercial success.

Meanwhile, over in the PC world, folks struggled on with their frustrating command line MS-DOS OS and boring text-based programs, secretly envying those in the Mac world clicking on their windows and sending things to the trash can. Bill Gates took note of this and in 1985 released Microsoft Windows 1.0. It was a slow, bug-ridden, crash-prone competitor to the Macintosh OS, but over successive releases throughout the '80s and '90s, it has grown into a powerful, full-featured OS every bit as capable as Apple's, and widely regarded as a solid, easy-to-use operating system.

The release of WinXP, which comes in both Home and Professional versions, represents a reunion of sorts. In 1993 Microsoft released its first version of Windows NT, a true 32-bit OS whose digital DNA was eerily similar to IBM OS/2, an OS which Microsoft had been contracted to build prior to the IBM-Microsoft relationship going sour. With the release of NT, the Windows family of products split in two: one for business, based on the NT engine, and one for home use, based on the standard Windows 3.x products. Although there were many differences, it was well known that WinNT was more stable and secure, while Windows 3.x and 9x had a broader selection of available software and more desirable features. By bringing these two together in WinXP, Microsoft hopes to provide the best of both worlds. The time for this appears right, as well, as in-home networks, DSL (Digital Subscriber
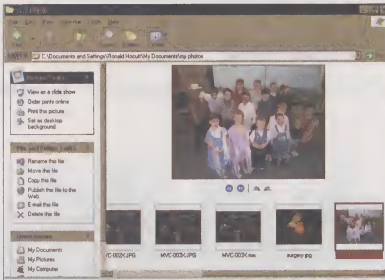
Creating a slide show and browsing for photos and graphics have never been easier.

Line) connections, and an increase in telecommuting are beginning to blur the line between the home and business.

What's New? From the ground up, it appears that Bill & Co. have built the first OS that is truly focused on the digital generation. Although there is the occasional nod to those who still take photos with a standard 35mm camera and who share a single Internet connection, XP is really focused on those who have embraced a totally digital existence: multiple simultaneous Internet users, digital cameras, a networked home, and a computer that stays on (and connected to the Internet) 24 hours per day, seven days per week.

If you fit into this category, there are plenty of new features in XP that will awaken the technochild in you. This article will introduce you to some of the more obvious ones, but be warned that the list of new and improved items in WinXP is long, and a thorough reading of this issue is necessary to understand them all.

Digital Media Meets The Mainstream. Unless you've been living in a cave for the past five years, you've undoubtedly noticed the move toward digital media. Music, photos, and video have all undergone a metamorphosis of sorts and the differences between the new creation and the old are striking. Microsoft has fully embraced this new digital media and provided a host of new capabilities for handling it; WinXP includes tools for working with still images, video, audio, and pretty much everything

else, all in a nice, cohesive package.

Completely sidestepping the issue of whether or not these things *should* be in an OS, we admit to being almost giddy about the prospect of creating and digitally editing movies made from old analog videos of our children. Add a little background music and some still shots and there won't be a dry eye at your child's graduation. (Well, yours won't be dry, anyway.) Where this used to be the exclusive purview of professional video editors with expensive digital editing studios, WinXP brings the capability to the average PC user. The quality of the end product will vary with the skill and artistic talent of the user, so we don't expect this feature will put the pros out of business. When something less than broadcast quality is called for, though, it's nice to know you can develop it at home. For a more in-depth treatment on making your own digital movies, see "Learn The Basics With MovieMaker" beginning on page 53.

If you like recording your CDs to your computer (ripping) and burning new ones with custom mixes, you'll love the new tools included in WinXP. Recording CDs is nothing new, and there are many programs on the market today that you could use to "rip" songs from your CD collection, but the new Windows Media Player boasts the highest quality recordings while maintaining the smallest file sizes. (Keeping the size of files down is critical when recording large amounts of music.) To learn more about this, see "Their Sounds, Your Order," beginning on page 116.

For those of you who just want to take your notebook on a plane and watch a DVD movie, the Windows Media Player has been significantly enhanced to provide improved DVD playback and simpler navigation, along with many other new features.

Networking Comes Home. Ten years ago, computer networking was exclusively a business endeavor, driven by the need to communicate among employees. What a difference a few years make. Now, many households are wired with power, phone, cable, *and* Ethernet. For those that are not,

there are many options for using existing phone lines or AC outlets to connect home computers together. If none of these options suits you, new wireless technologies provide a very usable networking environment without any physical connection at all.

In spite of all of this connectivity, however, the act of setting up and managing a network has not improved much. Configuring a network has always taken some effort, especially when it came to setting up security and file/printer sharing. WinXP promises to change all that by providing a Network Setup Wizard. Once started, the wizard automatically:

- Sets up ICS (Internet Connection Sharing).
- Installs and configures the Internet firewall to protect the entire network.
- Walks the user through the setup of workgroups.
- Configures the network for file sharing.
- Detects and configures all printers on the network.

This automated setup promises to bring computer networking to even the most technically inept among us. We explore this more fully in the article "No Hammer, No Worries," beginning on page 87.

■ **Reduce Family Conflicts With ICS.** If your house is typical, you have a single connection to the Internet, and whether it is a DSL connection, a cable modem, or a dial-up connection, chances are you find the members of your family competing to use it. One solution to this problem, of course, is to get another connection installed. The expense of this, however, makes it an unattractive option for most. If you find yourself in this situation, you'll be happy to know that WinXP includes a feature that should solve the problem: Internet Connection Sharing.

To use ICS, you'll need two networked computers. Once you've set up the network, sharing the same Internet connection becomes a simple and intuitive operation. WinXP will automatically set up Internet connection sharing for you via the Network setup wizard. Once networked, you'll be able to simultaneously browse the Internet from all computers connected to the network. This is how most businesses have been doing it for years, with great success. The only time you're likely to notice any impact is when a single person on the network is downloading a large file.

■ **Security.** British statesman, parliamentary orator, and political thinker Edmund Burke once said, "The only thing necessary for the triumph of evil is for good men to do nothing." This is especially true when it comes to computer security. Do nothing, keep your computer turned on and hooked up to the Internet, and eventually someone bent on evil will find it. What they do to it at that point is up to them, but you can bet they don't have your best interests at heart. This sort of activity is on the increase, as the rapid adoption of always-connected systems within the home provides crackers with many more targets to hit. Unfortunately, many of those same systems make it entirely too easy for the cracker.

The good news is that WinXP includes a built-in firewall, a program whose sole function is to monitor the Internet traffic into and out of your computer (or network), letting in or out only the traffic you want and blocking everything else. Microsoft has made it very easy to set up, and it is included automatically as part of the Network setup wizard. If installed on a network, it will secure the entire network against intrusion. To understand more about installing and using the firewall, see "Internet ConnectionFirewall" beginning on page 84.

Not all the new features in XP enhance security, however. In providing things like greater remote access to your computer, you could easily make your system easier to hack, so you'll want to read "Security Overview," beginning on page 77, to make sure you understand all the security-related ramifications of Windows XP.

■ **What's Improved?** There will always be naysayers, especially where Microsoft is concerned. But the fact is that WinXP is a robust, stable OS, much improved over previous

Windows XP's Network Setup Wizard takes the hassle out of connecting computers together.

incarnations. Still have doubts? We'll describe a few of those improvements for you.

Stability. Bill Gates once reportedly quipped, "If GM had kept up with technology like the computer industry has, we'd all be driving $25 cars that got 1,000 miles per gallon." General Motors is said to have responded, "Sure, but the car would crash four times per day, and this year's tires would be incompatible with last year's cars." This little exchange, while humorous and undoubtedly apocryphal, serves to underscore the biggest issue that many Windows users have with the Win9x family of products: They simply don't work much of the time. If you haven't had the memorable experience of your computer locking up in the middle of a long report you've just written (and haven't yet saved), then we encourage you to stick around; it's only a matter of time.

The truth is that 20 years after the PC revolution began, many computers simply stop working for no apparent reason. Often, the only fix is to turn the machine off and start from scratch, losing everything you were working on that wasn't saved. What many home computer users don't know, however, is that it doesn't *have* to be this way. For several years now, businesses have benefited from Windows 2000, a product that is much more stable than Win9x, and which lets the user shut down a frozen application without forcing a reboot. Win2000 isn't perfect, but it is a vast improvement in stability over the Win9x family of products. The good news is that WinXP is now married to the Win2000 engine, the invisible part of the OS that actually performs the tasks that the user directs through the user interface. This means that home users will now benefit from Microsoft's efforts to make Win2000 bulletproof for critical business environments; and while it's too early to call, early attempts to crash WinXP have shown it to be as stable as its Win2000 parent.

The company has also improved stability and backward compatibility by offering Compatibility Modes, which let a WinXP user operate a program written for Win9x or NT, but in an environment that is more compatible with the older program. This should cut down dramatically on the issue of older programs crashing the new OS.

Device compatibility. Ever since Apple and Microsoft started to compete head-to-head, compatibility of peripheral devices has been a sore point between the two. Apple is well known for providing a system where everything just works, no questions asked,

but with limited system expandability and with increased cost. In the meantime, the PC world has always had a large number of third-party peripherals available to it at low cost but has suffered from compatibility issues. With the release of XP, Microsoft promises to address this problem. Users of WinMe will recall that this promise is not new: WinMe claimed to support nearly all popular devices on the market. To many who suffered compatibility issues, however, the reality of WinMe was somewhat different than the promise: Many peripherals didn't work at all or experienced intermittent problems that were difficult to track down.

Microsoft appears to have taken this to heart and again is promising that XP will be the most compatible OS ever. For the skeptics among us, they present two things to prove their point: 1) a catalog of hundreds of supported devices, and 2) a function called Device Driver Notification, which alerts users to hardware manufacturer driver updates. Only time will tell how compatible XP will be, but installation on our machine, at least, was flawless.

User interface. As the old command line OSes so aptly proved, the value of the system is only as good as a person's ability to use it. From the very beginning, the GUI was designed to take the mystery out of operating a computer. The visual cues the user received by opening and closing on-screen windows brought the technology within the reach of the average person, further fueling the personal computer revolution.

Improving the usability of an OS, however, is an evolutionary process. As computers become more commonplace, they reach even those who were hesitant to use them just a few years before. This process requires that the user interface continue to adapt and improve. The challenge is to make the computer easier to use for the technologically challenged without taking away the flexibility and control demanded by the power user. WinXP has struck a reasonable balance between the two, providing

a powerful system that nearly anyone can master and appreciate.

Font improvements. One of the first things you'll notice with WinXP is the improved handling of display fonts. If you've ever had to blink several times before reading a screen of text (as we often do after several hours of work at the computer), you'll appreciate this improvement immensely. WinXP's new ClearType technology promises to provide an on-screen reading experience that is very similar to reading a book, an improvement bound to be greatly appreciated.

Interface tools. Microsoft has also improved many interface components. Items such as the Taskbar, Start menu, Folder view, and Control Panel sport an entirely new look, but retain the

Windows XP's revamped Search functionality is more robust and more accessible than similar tools in previous versions of Windows.

With the intuitive Windows XP interface, even young children were up and running within minutes. (From left, Hannah, 8; Adam, 6; and Benjamin, 4.)

essence of the Windows experience. As a test, we sat our kids (ages 4-8) down in front of WinXP with no instruction and showed that they had exactly zero difficulty in navigating to and launching Math Blaster, Hot Wheels Stunt Track, Reader Rabbit II, and various other essential programs. Just think of the possibilities: No longer will you have to squint at your Taskbar to see what programs are active. With improvements such as these, using a computer may actually become enjoyable, although we cannot make guarantees in regards to any forward-looking statements.

Wizards. One way that Microsoft has chosen to provide an OS for both regular and power users is to provide lots of wizards, little programs that walk the user through a step-by-step process. WinXP is full of wizards; so many, in fact, that you'll hardly have to do anything from scratch if you don't want to. Insert the Setup disc into your machine and the Setup Wizard tells you, "I'm here to help you set up your new computer." It then proceeds to examine your computer in the minutest detail, setting up all the hardware and software it can find, and reporting back to you the ones with which it thinks you may have a problem. Very nice indeed. Start up the Network Setup Wizard, and your systems will be connected with very little effort or stress. The Files and Settings Transfer Wizard will help you retain and move settings and documents to XP from another PC, and the CD-Writing Wizard takes away the confusion and uncertainty in writing to a CD-RW (CD-rewriteable) drive, a cause of angst for many.

In fact, there are so many wizards (we stopped counting at 15), that we'll venture to guess that you should never have to perform any process that requires more than a few steps without having a wizard handy for the task. In addition to the ones mentioned above, a couple of the more notable ones are the Camera & Scanner Wizard, which helps you connect your digital imaging devices, and the Accessibility Wizard, which will guide you through the process of setting up the machine to meet the needs of the disabled.
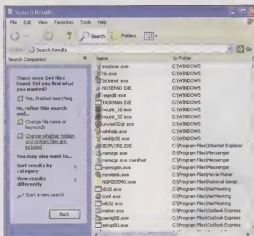
More information on WinXP's various wizards can be found throughout this issue.

Searching. Large hard drives, networks, and the Internet have all combined to make finding things nearly impossible, simply because there are now so many places to look. We're frequently frustrated when looking for a file that we know is on our system, or even when trying to find another person's computer on the network. Searching for these items in previous versions of Windows was often disappointing, since one often ended up with no usable results and a dialogue with our system that we wouldn't want our children to hear.

Fortunately, the folks at Microsoft heard our cries for mercy and have provided a new search interface that should increase both accuracy

Windows XP provides some flexibility for meeting the needs of the disabled.

and ease of use. From one screen, you can now launch a search for any combination of documents, people on the network, folders, music, printers, and other items. You can even extend this search to the Internet if you wish, and search the MS support database at the same time. The new interface won't mitigate the problem of finding 320,034,874 hits to your Internet search, but at least your own local environment will be more manageable.

XP Professional. Up to this point, we've focused on the features that are common to both the Home and Professional versions of XP. Trying to not repeat the mistakes of the past, however, Microsoft's goal is to provide a stable platform that will be equally usable for families and businesses alike. To that end, they have included a set of features in the Professional version that the home user is unlikely to need, but which the business user will find indispensable.

These features are designed to manage large numbers of WinXP machines over a distributed network and include tools to manage accounts and groups. In addition, the system administrator can install new software or patches on the users' machines whenever they log onto the network. There are also many security and compatibility features that enable WinXP to peacefully coexist

within a Novell NetWare environment. To further explore the specific features of WinXP Professional, see "Home Vs. Professional," beginning on page 14.

What Do I Need To Use It? All of these great features come at a price. If you plan on loading WinXP on your old Pentium 133 with a 2GB hard disk, forget it. Even if you had the space available to load it, the OS would run too slowly to be useful. Microsoft recommends a 300MHz or faster processor, although they say it will run on a 233MHz machine. Our tests suggest that you'd better have a lot of patience if you want to run WinXP on anything less than a 500MHz machine. Our 333MHz machine sat grinding away for a very long time while performing even simple tasks such as opening the Control Panel. Obviously, the more RAM you have, the better; Microsoft recommends 128MB. Other recommendations include a minimum of 1.5GB of available hard disk space, an SVGA (Super Video Graphics Array) monitor and graphics card capable of 800 x 600 resolution, a CD-ROM or DVD drive, a network adapter, and Internet access. Of course, what you end up needing will depend largely on what features you choose to install and how

you plan to use the system. You can find out more about system requirements and recommendations in the article, "Is It Time To Upgrade To XP?" beginning on page 10.

And Much, Much More. While many operating system upgrades are nothing more than a repackaging of the previous version with a few fixes and additions, WinXP is clearly a significant improvement over its predecessors. In addition to the new items mentioned earlier, WinXP includes great new features such as a new Search Companion, DirectX 8 (for improved game playing), and an entirely new integrated support system called Microsoft Online Assisted Support. (This last feature lets you pose a question to a real, live, fully functioning Microsoft Support person without getting up from your desk. This alone should go a long way toward easing the frustration of using a new OS.)

Also, Microsoft has included its automatic update engine in WinXP, so you can be sure that your system is always current with the latest patches and drivers. This is especially critical, given that quite a few hackers are probably at work right now trying to figure out a way around the ICS firewall. When they succeed (and they will, eventually), Microsoft will update the XP code to fix any holes. You'll want to make sure you have this update or your system will be left wide open. For more information on the Auto Update feature, see "Automatic Updates," on page 56.

WinXP is not just a simple upgrade or patch. It's such an extensive overhaul of the Windows product that we've really only touched the surface of the many new features. We encourage you to read carefully the in-depth articles in this issue to learn about all of the additional features that Windows XP has to offer. LS
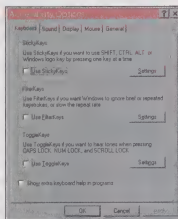
by Ron Hocutt
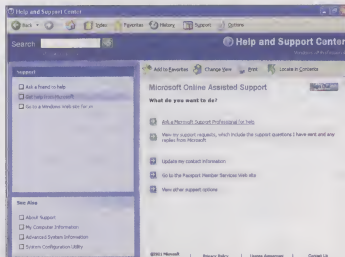
If you have Internet access, you'll find that XP's new Help And Support Center enables queries to both the Microsoft Knowledge Base and to Microsoft support techs.

Is It Time To Upgrade To WinXP?

Should Windows XP Be Your Operating System?

Windows XP has arrived on the computing scene and is taking no prisoners. With three versions aimed at the home, office, and data center, Microsoft is branding WinXP as the computing "XPerience" you won't want to miss as it attempts to keep control of the market for computer OSes (operating systems). And like many Microsoft products, it has an assortment of vulnerabilities and strong points. So how do you decide whether it's worth your time and money to upgrade? Although we can't make the decision for you, we can help you wade through the hype and hyperbole surrounding XP.

To help you make a sound, informed decision, we'll first look at what a good OS does, how WinXP fits into our model, and then some common scenarios that may apply to your computing situation.

So, What Does My OS Do? The first step in evaluating whether WinXP is the appropriate OS for you is examining just what an operating system actually does. Without getting into the gory details, an OS first and foremost manages your hardware for you. It controls what each hardware component does, in what order, and for which program. It manages the computer's file systems and controls how the user interacts with it. Finally, the OS also provides an interface for programs to access all these functions and components. Whew. That's a lot of work. Not only does it have to perform all these tasks, it needs to do so with speed, stability, security, and in the specific case of Microsoft, on the Intel x86 chip platform.

The complexity involved in accomplishing these tasks can be astounding when you consider the vast array of hardware that needs to be supported: motherboards, video cards,

hard drives, monitors, network cards, modems, and on and on. For any OS, this would be a daunting task. When we add the final straw, backward compatibility (the need to support older applications designed to run on older OSes), the task becomes herculean. And supporting backward compatibility has always been problematic for Microsoft as the differences between DOS, Windows 95, Windows NT, and now WinXP grew more substantial and widespread.

■ **Hamstrung By The Past.** For many years, Windows was fragmented into two OS product lines. There was the consumer line of Win9X OSes, and the business-oriented NT series that culminated in Windows 2000. Starting with DOS (Microsoft's original command line operating system), Windows 3.1, Windows 95, Windows 98, and Windows Me all shared the same core OS component, known as the kernel. Though Microsoft continually upgraded the kernel and the tools associated with it, the need for backward compatibility always hampered Microsoft's ability to create a clean, stable OS that took the best of the past, while discarding ideas and technologies that weren't needed or which had proven unreliable. As the computing world moved into the arena of 32-bit CPUs, these OSes had trouble taking advantage of the increased power while still providing DOS support. The result was a series of technological compromises. All of this changed with the adoption of the NT kernel.

■ **32-Bit Power.** Microsoft's first successful 32-bit OS was WinNT, which featured significant improvements in performance and stability over what came to be called the Win9x series of OSes. Applications written to take advantage of NT were faster and more stable than previous versions that ran on Win9x. With the success of the NT kernel, Microsoft began to realize that providing the performance and stability demanded by consumers and business required a complete shift to NT's 32-bit kernel. Thus, Microsoft embarked on a migration path utilizing Win2000 to make this happen. Once enough Win2000 software applications were in place, dumping the legacy kernel from the Win9x era would be more palatable to consumers.

■ **Game Playing.** Microsoft was also concerned about supporting the computer gaming industry. They viewed the PC platform as the pre-eminent gaming platform and were leery of hampering game development by abandoning the Win9x kernel. Game players always push the performance of computer systems to their limits, and gamers are often a driving force in upgrading hardware and applications; if Microsoft made it difficult for game developers, they could lose an influential market. Also, Microsoft itself has successfully ventured into game development and was keenly aware of the importance of games. (Ironically, Microsoft has now recognized the burgeoning game console market and recently introduced the Xbox as its standard-bearer.)

When Microsoft released WinNT, the reaction of both game players and developers was lukewarm at best. Although they liked the stability and robustness of the NT kernel, game designers had to target the largest market, the Win9x users. This led to NT being pigeonholed as a "business" OS. Until the adoption of the NT kernel in Win2000, the Win9x line was king for gamers.

■ **It's All About The Devices.** Consumers loved Win95 for two reasons. First, they loved the GUI (graphical user interface) modeled after Apple's Macintosh. Second, users had come to rely on Win95's support for vast arrays of hardware. And the inclusion in Win95 of a rudimentary system for easily installing new hardware (called PnP, or Plug and Play) offered the promise of computers as easy to use, friendly, and exciting devices. (Early, and often flawed, versions of Plug and Play were referred to sarcastically as "Plug and Pray," but Microsoft continued to develop PnP; it finally became usable with the release of Windows 98SE.)

■ **Where XP Stands Today.** Microsoft has taken all of its failures and successes and applied them to XP. Instead of two disparate OS lines, Microsoft intends to meld the two into one single line, XP, that shares a common kernel and interface. With the Home

Edition, Professional Edition, and XP-64 Bit Edition, Microsoft wants to leverage all of its past research and design into one stable family of operating systems. And while the business community is undecided, Microsoft has definitely hit the mark for the consumer market. WinXP is a significant improvement in the key areas of stability, performance, and usability. So is XP right for you? Let's take a look at these three areas and see why XP might be your best choice.
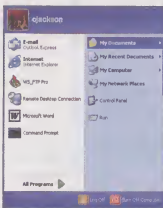
The Start menu is the hub that controls the WinXP experience.

■ **Three Keys To XP's Stability.** Microsoft wisely chose to stress stability as a key feature of XP. Long derided as systems requiring frequent reboots, previous versions of Windows were often more tolerated than loved. Resilient users learned to save documents frequently, lest a Windows crash cost them their hard work. Jokes spread through the computer world describing how the world would be if Microsoft ran the auto industry. It seems likely that Microsoft decided it didn't like being the butt of all those jokes, because WinXP is probably the most stable Windows ever produced. Key to this stability are three things: the adoption of the NT kernel, driver verification, and the System Restore feature.

XP's kernel. The fatal flaw in the old Win9x world was the DOS legacy practice of allowing applications direct access to your computer's hardware. If a program misbehaved, the entire system would crash, and your only option would be to reboot the computer. The NT kernel used in WinXP puts a stop to this. Instead of assuming a program will behave properly, XP controls the hardware through a Hardware Abstraction Layer, or HAL. The HAL acts as an interpreter, diplomat, and traffic cop all rolled into one. Now

when a program wants access to a hardware component, it politely sends the request to the HAL, and the HAL ensures the application doesn't create any mischief.

Driver verification. If the HAL is controlling the hardware, it needs to know how to talk to each device. This is achieved through a software component known as a driver. The driver acts as a translator between the physical device and the OS. In the past, a poorly written driver could cause crashes or otherwise disrupt your computer. Microsoft had originally left driver validation up to the hardware manufacturers, but realized that this put their fate in someone else's hands. To remedy this, Microsoft created the WHQL (Windows Hardware Quality Lab). The WHQL evaluates each driver and corresponding hardware device a manufacturer submits for WinXP. After testing the driver, Microsoft certifies it, so that the OS will know that it's supported. (You can still install non-certified drivers, but WinXP will issue a dire warning.)

System Restore. Should you ignore the warnings of impending doom and gloom that arise when you install a non-certified driver, you may face an unstable system. Luckily for you, Microsoft has included in XP (and in WinMe before it) a System Restore feature that could save you from your recklessness. System Restore lets you roll your system back to a previous configuration. So if you want to try out a new video card driver that guarantees you'll be the online Quake champion, you can install it without worrying
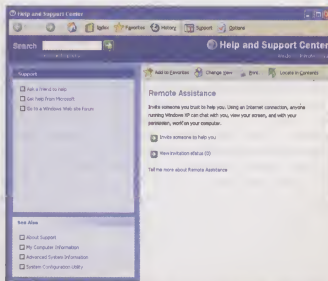
Seeking help? Windows XP provides the most intuitive and robust help system of any Windows operating system.

about doing irreparable damage to your computer; if it blows up, simply restore to the day prior to installing the troublesome driver.

■ **Improved Performance.** With the ambition Microsoft has for XP, it comes as no surprise that improving the performance of the OS was one of the key design decisions. While the jury is still out on whether XP outperforms Win2000, there's no doubt that the Win9x line falters in comparison to WinXP when running on similar hardware. Key among the performance metrics are application performance, application startup times, and power management performance.

Application performance. Since WinXP utilizes a 32-bit kernel, programs that are written for it can run faster than their counterparts on Win9x. In addition, XP manages your computer's system memory more efficiently than did the Win9x series. Previously, for example, Win9x couldn't effectively utilize RAM over 128MB. With XP, you're not limited by the OS as to how much RAM you can implement, but by the motherboard. The bottom line is that in this day of incredibly cheap RAM, you can load your system up with gigabytes of memory, and XP will allocate it in an efficient manner.

In addition, the Win9x OSes didn't do a very good job of multitasking, or letting you run multiple applications at the same time. WinXP offers significantly better multithreading, allowing multiple computer processes to be orchestrated between different CPUs. With the availability of cheaper CPUs, and a consumer-friendly OS able to manage multiple CPUs, dual-CPU computers may become the norm.

Application startup. XP uses a nifty bit of sleight of hand to speed up application startups. After you've loaded a program a few times, XP notes this and locates startup components in a section of your hard drive that can be accessed more quickly. The bottom line is that you spend less time waiting for your applications to load, and more time using them.

Power management and system startup. Microsoft has paid a great deal of attention to notebook users, as they constitute a growing market segment. One common complaint has been the sluggish Hibernation, Shutdown, and Resume features in prior Windows versions. Because notebooks often rely on battery power, time has always been important
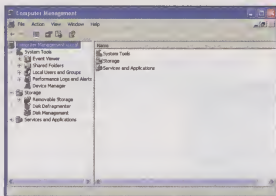
The MMC (Microsoft Management Console) will be familiar territory for users of Windows 2000.

to Notebook users who chafed at waiting for the OS to load. WinXP addresses most of their complaints. Not only does the system boot up more quickly than previous versions of Windows, but the Hibernate and Resume functions work efficiently to significantly extend battery life.

■ **Usability.** With the possible exception of Apple, arguably no one understands computer users better than Microsoft. The Microsoft mantra might best be termed "Features, Features, Features." Each version of Windows has always tried to pack in more features, software, and utilities than the previous version. Some of these features are abject failures (remember Bob? Didn't think so), while others (like Internet Explorer) are resounding successes. Microsoft has never been shy about adopting competitors' ideas and has been embroiled in legal action throughout the history of Windows because of this. The bottom line is that Microsoft eagerly implements new features into Windows and tries to include the best from its competitors. The end result is Windows XP, with perhaps the best Microsoft-created help functions, the easiest and most extensive help features, and the ability to customize that is so important to the hardcore computer enthusiast.

XP's minimalist interface. First-time users of XP will be surprised to find only a solitary icon on the XP Desktop: the Recycle Bin. Although users can

create shortcuts to their favorite applications as in previous Windows versions, XP has shifted the emphasis from the Desktop to the Start Menu. Microsoft has also borrowed heavily from Apple, with a Desktop theme named Luna. With translucent icons, pastel colors, and rounded edges, the Luna theme is inviting and friendly.

Help is on the way. XP also includes a more comprehensive help system than offered by previous Windows OSes. Microsoft has configured XP around a task-based model rather than the previous command-based implementation. For less experienced users, this can reduce the amount of confusion when faced with an array of intimidating options. Of course, the flipside is that power users may feel that the OS is being "dumbed down."

Customization within your control. Luckily for power users, the very settings that enable new users to feel at home can be customized. Most of the Start Menu settings can be switched to the Classic format that is available on Win2000. This "best of both worlds" approach was a wise one on Microsoft's part and might have been prompted by some of the grumbling heard when Win2000's new interface was introduced.

■ **What's The Catch?** As someone once proclaimed, "There's no such thing as a free lunch." So what's the penalty for moving to XP? Perhaps the greatest is that because of all of the features in XP, the OS has heavy system requirements. See the "WinXP System Requirements" sidebar for specifics about Microsoft's minimum and recommended system requirements, but the bottom line is that XP rewards you most if you have a fast, up-to-date system. If you try it with the minimum requirements, you may be disappointed. The one element that XP really loves is RAM, but

WinXP System Requirements

Here are Microsoft's minimum system requirements, as well as their recommended system configurations. Remember that you'll want to err on the high side to get the most out of XP.

	Minimum	Recommended
CPU:	233MHZ Intel/AMD	300MHZ Intel/AMD
RAM:	64MB	128MB
Disk Space:	1.5GB	1.5GB
Video:	SuperVGA or higher	SuperVGA or higher

with the price of memory at historic lows, the cost of upgrading your RAM is trivial, compared to the cost of purchasing XP.

■ **Should You Upgrade?** So, should you run out and buy XP? As you can probably guess, the answer is "It depends." Make no mistake about it: XP is the future of Microsoft, and a fine OS to boot. However, that doesn't mean it's for everyone. In the section below, we'll discuss several scenarios that will help you decide. But remember that if you're happy with the way your computer currently works, and if you understand the benefits offered by XP, ignore the media hype. A computer should be a tool to help you do the things that are important to you, not a status symbol.

The gamer. Computer gamers push hardware to its limits, seeking to squeeze out every drop of performance in pursuit of a competitive advantage. XP's ability to handle multiple processors, its stability, and especially its ability to run older applications in Compatibility Mode make XP a sound choice for those who enjoy games. Be sure to check with your hardware manufacturer to see if there are XP drivers for that cutting-edge video card of yours.

The business traveler/notebook owner. XP is definitely where you'll want to be. The only caveat is that XP takes up a great deal of disk space, and hard drive sizes for notebooks are increasing at a slower pace than for desktop computers. The trade-off is well worth it, as you'll find you're more productive, and moving your notebook to and from a network has been greatly simplified.

The home user. Although this covers a wide spectrum of users, most home users will find something in XP that will motivate them to upgrade. Whether it's easier networking, wireless LAN (local-area network) compatibility, or simpler troubleshooting and repair, XP will be a marked improvement over any of the Win9x series, as well as WinNT.

■ **If You're Happy & You Know It.** There are several cases in which you may not want to move to XP. For example, if you don't meet the hardware requirements listed in the "WinXP System Requirements" sidebar, XP

will definitely be a disappointing experience. Or if you have hardware or software that isn't supported by XP, you may be forced to wait until a later time to upgrade your OS.

The Win2000 user. The biggest competitor to XP comes from Microsoft itself: Windows 2000. Due to their shared heritage, Win2000 already incorporates a great many of the features that make XP so appealing. The

If you're looking for the non-Microsoft software that takes advantage of WinXP's new features, check out the links on Microsoft's Web site.

stability is equal, and some independent tests have shown that, on identical hardware, Win2000 Professional is faster than WinXP Professional. And many of the programs bundled into WinXP are also available for free as downloads from the Web. So, if you're happy with Win2000, there's really no need to go through the headaches of migrating to XP.

The Microsoft-hating curmudgeon. If you feel indignant that you should have to upgrade your hardware to use XP, you might want to investigate some of the non-XP alternatives noted below. These may give your old system a new lease on life, and the only cost will be some of your time.

Face it: Microsoft has used business tactics that have alienated some users. Endless upgrade cycles and security breaches have left some previously loyal users grinding their teeth. XP might cause you even more grief, as it is the clearest expression to date of Microsoft's intention to be the focal point of the computing world. If you can find a way to abate your anger, you may find that XP isn't as bad as the doomsayers and Microsoft's competitors might want you to believe. But if you're still unconvinced and

feel the need to investigate alternative OSes, see below.

■ **How Do I Get Off The Microsoft Merry-Go-Round?** You're stuck between a rock and a hard place. Your current OS is failing you, crashing, and costing you valuable time. Yet you either can't or don't want to move to XP. What's a person to do? Below are three OS alternatives that might make your computing life a bit easier.

Linux. The buzz around Linux has died down as Linux has matured, and as the novelty has worn off. What's left is a solid, full-featured OS that in many respects can run rings around the best Microsoft offerings. Best of all, it's free. The downside is that Linux expects you to be willing to learn how your computer works. If you don't have the time to invest in educating yourself, and you don't have a Linux guru handy, you may face some initial frustration. For details on Linux, see http://www.linux.org.

Apple. Apple has managed to stay alive in the face of brutal competition from Microsoft and Linux. Renowned for its ease of use, the Macintosh OS now benefits from the stability of its new FreeBSD (see below) core. The downside? MacOS only runs on proprietary Apple hardware, and the cost is generally at a premium, compared to Intel hardware.

FreeBSD. Like Linux, FreeBSD is a free, Unix-style OS, but with an older pedigree and a bit more polish. Versions of BSD run on most computer platforms, and they don't require the latest and greatest hardware. As with Linux, there isn't much handholding if (well, when) you run into trouble. See http://www.freeBSD.org.

■ **Decisions, decisions, decisions.** Some people fear change, while others revel in it. With XP, Microsoft has tried to make the decision to upgrade an easy one; for the most part, it has succeeded. As we've seen in the past, Microsoft will surely make some blunders. Still, when it comes to giving the customers what they demand, Microsoft almost always comes through. Eventually. LS

by Chris Jackson

Home vs. Professional

Which Version Is Right For You?

W indows XP, the latest in a long line of Microsoft OSes (operating systems), has been heralded as the most sophisticated, stable, robust, and user-friendly flavor of Windows ever released.

WinXP brings together more functionality than any other Windows release, offering a broader range of features to users of all stripes. But it also offers a choice of versions, Home or Professional, and lets consumers and corporate customers match their needs with different feature sets and pricing options. Of course, if you purchase a new computer at your local retailer, or if someone from your employer's IT department comes around to hand you a new notebook computer, you may not have much say in which version you get. But if you have the choice and decide that an upgrade to Windows XP is the right choice for you (see "Is It Time To Upgrade To XP?" in this issue, beginning on page 10), you'll need to weigh your WinXP Home vs. Professional options. We'll guide you through the process, and help you decide.

■ **XP Home Or Professional?** WinXP Home is geared toward personal and home users. It presents a new layout and design, provides some very handy applications for the most common personal computer needs, and incorporates some basic networking and security features. WinXP Professional, on the other hand, is aimed more at the business world. WinXP Pro includes the updated look and feel, as well as most of the Home version's gadget applications, while adding more robust network administrative tools, enhanced file security, and increased mobility (targeted at corporate notebook PC users). Both versions are now based on the Windows 2000 "code base" (the underlying programming that makes up the OS), which provides greatly increased system and application reliability and may improve system speed on some PCs. So, either way you go you'll find increased performance, new functionality, and improved tools.

Which is right for you? Well, the short version of the story is that the name of the product probably tells you what you need to know: Stick with WinXP Home for home use and

WinXP Pro for businesses. But, as with any rule, there are exceptions. If you're running an extensive home network, if you're a mobile user of a notebook PC, or if you consider yourself a power user, the added networking, security, and remote administration features of WinXP Pro might well be worth the extra cost. On the other hand, if you have a small business with a simple network (or no network) in which people use their computers primarily for performing basic PC functions (word processing, accounting, printing invoices, playing Minesweeper), you may well find that WinXP Home will suit your needs just fine. Getting it right the first time will not only prevent frustration and headaches; it will actually save you cash. You'll pay more for upgrading from WinXP Home to WinXP Pro than you'd have paid to buy Pro the first time. And don't expect a refund if you want to downgrade from the Professional to the Home edition.

■ **What'll They Cost?** So what does each cost? The suggested retail for WinXP Home is $199 for the standalone version and $99 for an upgrade. WinXP Professional runs $299 standalone and $199 for an upgrade. Keep in mind that the upgrade versions are good only if you currently have a licensed version of Windows 98, NT, Me, or 2000. If you're still using Windows 95, you don't qualify for the upgrade price and can't run the upgrade installation: You'll have to wipe out your PC and run a clean install. It will also cost you $125 to move from WinXP Home to WinXP Pro. Whichever way you slice it, expect to pay about $100 more for the Professional than for the Home edition. Is WinXP Pro worth the difference? Well, as with anything, the answer is in how you use it.

■ **New Design & Enhanced Usability.** The first thing you'll notice about WinXP is that both versions sport an updated look and feel. Microsoft hopes this will simplify your computing experience, reducing the visual clutter of icons and applications that has haunted Desktops and Start menus for years. The redesigned interface exemplifies Microsoft's proclivity for bolder colors, softer edges, and larger icons. Both Home and Pro users can also choose to revert to the classic Windows (95 and higher) styling. More functional design improvements include new ways to organize files and folders, a more intuitive Control Panel, and dynamic context-sensitive menus (similar to Office XP's Task Panes) that

appear on the left of your screen and provide you with quick access to your most commonly used options. In terms of design and usability, the two versions are nearly identical. Don't spend extra money just because WinXP Pro "helps business users work more efficiently" while the Home edition is merely "more attractive looking." Really, these are two sides of the same coin.

■ **Reliability.** Both versions also rely on the Win2000 code engine, or kernel, which is far more stable than previous versions. Users who are upgrading from Windows 9x and Me will see the most improvement. Both editions also sport a pair of protection mechanisms, "process separation" and "Side-by-Side DLL support," to prevent poorly behaved programs from altering

The System Restore feature in Windows XP helps you revert to a previously saved state.

system files and to reduce the likelihood that an individual application crash (your Internet browser, for instance) could bring down the whole system. WinXP also includes, in both versions, stronger protections against poorly written or conflicting device drivers (small programs that let your PC communicate with its components, such as modems or joysticks). These are frequent causes of performance problems, and stricter control over their compatibility with Windows and with each other should reduce the risk of them causing trouble on your system. And if things do go wrong, WinXP includes System Restore and other "rollback" tools to help you restore your system to a previously functioning state. Reliability may be especially important for professional users; if your business relies on your PCs being up and running, this improved stability is crucial. That said, if you run a small operation with a simple network where workstation stability is your only concern, you might derive just as much benefit (and more savings) from the Home Edition as you would from the Professional.

■ **Home-Friendly Features.** There are several elements of WinXP that seem specifically targeted at home and family use. While most of these applications come with either

version, they're not really of the commercial-quality grade that most business users would require. They also reflect Microsoft's desire to expand its offerings into the most common uses of home computers. For example, one feature designed especially for WinXP Home users is User Switching. This lets you easily create separate accounts for each user of a shared PC, including individual Favorites, Desktop, and other settings. Each user can create a customized Welcome Screen with an icon or photo, password protect his or her account, and switch back and forth between users without having to close applications or shut down the machine in between logins. This is especially useful at home, where multiple users often share the same PC, but it could also come in handy in a small business where several receptionists or clerks all use the same computer.

WinXP Home also includes a new Windows Messenger for communicating with friends online, a wizard for publishing photos to the Web, a bulked-up Windows Media player that lets you burn CDs without third-party software, the Windows Movie Maker, and automatic recognition of virtually all digital cameras and image formats. Each of these seeks to establish Microsoft products in place of several popular third-party programs. If you need professional conferencing or Web page creation software, or if you create commercial quality CDs, video, or imagery, you'll probably need more functionality than either WinXP version provides with these built-in tools. But if you merely dabble in these areas, or if your needs are limited to simple communication and multimedia tasks, WinXP Home will do the trick.

■ **Networking & Internet Tools.** Both the Home and Professional editions of WinXP offer basic networking tools.

Windows XP Home includes customized Welcome screens and the ability to quickly switch among users.

WinXP Home includes an easy-to-use Home Networking utility, WinXP Pro comes with a Network Setup Wizard, and both offer a software-based Internet Connection Firewall and Internet Connection Sharing tools. Both also offer better support for wireless networking protocols. Again, if you are setting up a professional-grade network or Internet connection, you'll need more knowledge and functionality than these tools provide by themselves. But if your needs are limited to creating a small and simple network with some rudimentary level of security, WinXP Home should suffice.

It's in the area of network management and administration that the two Windows XP products really begin to diverge. WinXP Professional supports remote installation of the operating system across a network and supports "ghost" images, via the SysPrep tool, which can quickly and efficiently duplicate a specified configuration onto multiple machines. WinXP Professional also gives network administrators tools to control access rights and settings for users and groups, which is very important if your network has any complexity at all or stores sensitive company information. WinXP Pro can create Roaming User Profiles on a network, which essentially means that users can log in at any workstation and work with their own files and settings profile. If you plan on performing central network administration, either at home or at work, or if you have a larger network with a number of users (as a growing number of households do), the network-administration-related benefits of WinXP Professional can quickly add up.

■ **Enhanced Security.** WinXP Professional also includes some significant security features that can help you protect important personal or business information. Both versions of WinXP come bundled with the latest Internet Explorer, Version 6.0, which includes new privacy features that let you control the data Web sites retrieve with cookies. In addition, the Professional edition lets you encrypt files on your local machine so that confidential data can be protected. WinXP Pro also provides you with user-level access control, so that access
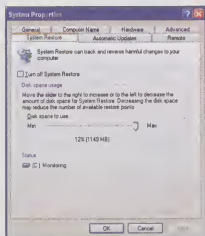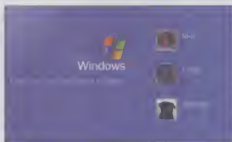
to selected files, applications, and other system resources can be restricted. If security is a major issue for you in either your personal or work-related computing environment, this added level of protection could be well worth the price all by itself.

■ **Mobility Features.** Mobile PC users will also benefit from several of WinXP's new features. Remote Desktop has been created specifically for people who work at several different machines. Remote Desktop lets you log in to a host machine over a network or Internet connection, and take control of it from the Desktop. You can work on the remote computer or copy files from its system to your current one. Only computers running WinXP Professional can run the Remote Desktop host application, which lets that PC be controlled remotely, but you can access a WinXP Pro host from any computer running Win95 or higher. If you often find yourself looking for files on a computer at one location only to realize that you have them saved somewhere else, or if you want to be able to monitor and access one location from another, you'll find this tool invaluable.

WinXP also reflects Microsoft's increased focus on serving notebook computer users. Improved power management and faster Standby and Hibernate functions will improve your productivity on the road and extend the life of your batteries. WinXP Professional also gives you the option of saving network files and folders offline, so that you can access your data even when not connected. When you reconnect, WinXP Pro will synchronize those offline files and folders with their networked counterparts.

In addition, WinXP Pro offers an added feature that should be very attractive to notebook computer users of all sorts. Have you ever had

to move your notebook back and forth between networks? If so, you're probably familiar with the hassle of having to update and change all your network settings each time you make the switch. Going through that process even occasionally (when trying to use your notebook back at home and at work, for example) is a major headache. WinXP Professional provides a feature called Network Location Awareness, whereby the operating system can detect when your notebook has changed locations and can utilize multiple network profiles, eliminating the need to reconfigure your PC every time you move between networks.

■ **There Is No One Right Choice.** "Customers can do things they've never done before with a PC; likewise, business users can work smarter and faster with more productive tools to meet the demands of any size company," Microsoft's Jim Allchin declared in a recent company press release. Corporate fears aside, there are indeed some significant differences between Home and Pro that make each an attractive option for different kinds of environments. While many users will clearly fall into one category or the other, depending on where they use their PCs, there are no hard and fast rules about which version of WinXP you should buy. If you have a small business without a complex network, system administrators, overriding security concerns, or a mobile user base, the added stability and basic tools of WinXP Home should meet your needs. On the other hand, WinXP Professional will probably be worth the extra cost, even for personal use, if you

Windows XP Home & Professional Features

Windows XP Home and Professional versions share many features, but the Professional edition adds more sophisticated networking and security tools. Here's a rundown on which versions include which features.

	Windows XP Home	Professional
Design and Organization		
New Visual Design	✓	✓
More Intuitive Organization	✓	✓
Context-sensitive Menus	✓	✓
Reliability		
Updated Stability	✓	✓
Device Driver Verifier	✓	✓
Home-Use Features		
User Switching	✓	✓
New Windows Media Player	✓	✓
Windows Movie Maker	✓	✓
Digital Photo Tools	✓	✓
Networking and Internet		
Home Network Utility	✓	
Network Setup Wizard	✓	✓
Internet Connection Firewall	✓	✓
Wireless Network Support	✓	✓
Network Install/Management		✓
User Access and Group Control		✓
Roaming User Profiles		✓
Security		
IE6 Privacy Features	✓	✓
File Encryption		✓
Access Control		✓
Mobility		
Improved Power Management	✓	✓
Offline Files and Folders	✓	✓
Remote Desktop		✓
Network Location Awareness		✓

have a growing home network with multiple machines and multiple users. Also, if you are a mobile computer user working from different locations or utilizing a notebook PC, or if you want to take extra steps to ensure data security, you'll need WinXP Pro to take full advantage of the features you want. If you match the features that each version offers with your own needs, you'll make the right choice both at work and at home. [LS]

by Gregory Anderson

Remote Desktop lets you control a Windows XP Professional PC from virtually any other Windows computer.

Get The Most Bang For Your XP Buck

Where & How To Buy Windows XP

Y ou've heard the buzz on the Web and seen the signs at computer stores in your hometown. You've even hummed along to Madonna in Microsoft's commercials. Now you're ready to experience Windows XP. But before you saddle up and head into town for a copy of Microsoft's latest OS (operating system), take a few minutes to let us help you choose the most affordable way to make the move to XP.

■ **Which Edition Is For You?** While you wouldn't know it from Microsoft's marketing efforts, WinXP comes in two flavors, Professional and the Home Edition. The primary difference between the two editions is that XP Professional includes features for business networking that many home users may not need. Despite this, the two products share the same fundamental core components that will help you forget some of the problems

you've had with Windows in the past. Regardless of which edition you choose, we'll help you get the best deal.

■ **New Systems.** If you've been planning on purchasing a new computer system, now may be the time to act. Most OEMs (original equipment manufacturers) are heavily promoting WinXP. And because OEMs receive discounts for buying large numbers of licenses, the savings are passed on to you. In addition, if you buy a new system preloaded with WinXP you'll know that the hardware configuration has been optimized to work with XP.

If you choose to stick with your existing hardware, you may find that you have some components that aren't fully supported by the new OS. If that's the case, you may have to wait for hardware manufacturers to introduce software drivers that will let you use these

legacy devices with XP. That caveat aside, you can take some comfort in knowing that WinXP supports a tremendous array of hardware right out of the box, and that Microsoft has been very proactive in pushing hardware vendors to supply update patches.

■ **Upgrading Your Hardware & The OEM License.** Even if you decide to use your existing computer system, you may still want to investigate upgrading some components. A faster CPU, larger hard drive, and more memory will make your WinXP computing experience all the more enjoyable. And Microsoft has a licensing arrangement that lets you take advantage of these upgrades and receive a lower price for WinXP. Termed an OEM license, it lets you purchase WinXP at a significant discount from authorized OEM resellers, usually with the stipulation that you purchase a hard drive or motherboard at the same time. While prices fluctuate, our rough survey of online vendors revealed price breaks of up to 50% when upgrading this way. One word of caution: Be sure to choose a reputable vendor. If you have any questions about licensing , speak to someone in the vendor's customer service department. Check out http://www.resellerratings.com to evaluate online vendors.

If you're wondering if your system is up to the task of running XP, remember that Microsoft recommends a Pentium II, 300MHZ CPU; 128MB RAM; and 1.5GB free disk space.

If your system doesn't meet or exceed these recommendations, take a good hard look at the OEM licensing option. The money you save on your software may pay for a good portion of your hardware upgrade. Microsoft has provided a valuable online compatibility tool (at http://www.microsoft.com/windowsxp /home/howtobuy/upgrading/compat.asp) that can help you determine if your system can run XP. If you'd like to find out if a specific hardware component is supported, take a look at http://www.microsoft.com/hcl, where Microsoft lists hardware that has been tested on various OSes.

■ **Academic Editions.** Microsoft knows that if it makes it affordable for students to use Microsoft software, they'll probably stick with the same products once they graduate. With this in mind, Microsoft lets students at most colleges purchase Academic Editions of its products at a discount. Unfortunately, this

program doesn't usually apply to OSes. However, some college bookstores offer extremely competitive pricing that may be better than you'll find in traditional outlets.

If you don't need to upgrade your system for XP, or you aren't a student, your remaining alternatives are to follow Microsoft's upgrade path or to purchase the full version of XP.

■ **A Version For Everyone.** In helping you choose the most cost effective way to make the move to WinXP, keep in mind that while Microsoft naturally wants to make money, they don't want to make it so expensive that you stay with the OS you currently have. To keep you hooked at a reasonable price, Microsoft lets you purchase an upgrade version at about a 50% discount over the full version. While this sounds like a no-brainer, there may be some obstacles in your upgrade path.

Not all Windows are created equal. Microsoft wants you to be able to upgrade at an affordable price, but they don't like you to wait too long between product cycles. In addition, a true upgrade transfers programs and files from one version of Windows to the next, a task that is really quite impressive when you consider how different some versions of Windows are when you look under the hood. Because of this need to allow for system migrations, your version of Windows may just be too long in the tooth to undertake an upgrade. Here are some previous versions of Windows and how they fare in terms of upgrading:

path to pursue, but if it's your only remaining option, there are still ways to get the best deal. If the features in the Home Edition of WinXP satisfy your requirements, you'll generally save $100 over the Professional Edition. Be sure to read through "Home vs. Professional," beginning on page 14, to learn more about the pros and cons of each edition.

■ **Where To Buy.** Now that you've determined what edition you'd like to purchase, you need to find the place that will give you the best price, matched by good service and support. As with most computer-related purchases, your best options are on the Web, at the big superstores, and from mom-and-pop computer shops.

The Web. Buying on the Web will generally get you the best price on Windows XP. You can even purchase XP directly from Microsoft's Web site, though the price won't be discounted, as you might find with other Web vendors. A good Web site for finding all types of computer vendors is http://www.pricewatch.com. This is a good starting point for selecting an online vendor, but be sure to check the vendor's bona fides at http://www.resellerratings.com.

Superstores. Superstores such as Best Buy and Circuit City can be a source of good deals for software such as XP, depending on what promotions they may be offering. While their

Price Watch is a good starting point for finding the best prices on the Web.

clear: They simply can't compete on price. Where they make it up, of course, is in the quality of service they deliver. Because they rely on word of mouth to build their sales, they have a huge incentive to treat you right. If you don't want to do the dirty work of upgrading your system to XP, consider having a small computer store do the work for you.

■ **Buyer Beware.** Lurking in the underbelly of the software business are counterfeiters, "gray market" resellers, and other disreputable merchants looking to fleece you. Advertising prices that seem too good to be true, they'll sell you software that runs like the real thing, but which may either be counterfeited or not intended for retail sale. In the past this wasn't too much of a problem for the consumer, though publishers lost out. But with Windows Product Activation now an integral part of WinXP, buying a bootleg copy may leave you with nothing more than a useless CD. Be sure that you're dealing with a reputable vendor; if the software you purchase doesn't have a Certificate of Authenticity and appropriate packaging, contact Microsoft's anti-piracy hotline (call 800/RU-LEGIT or 800/785-3448, or go to http://www.microsoft.com/piracy). The company may not be able to get your money back, but they'll help put the offender out of business.

■ **What The Future Holds.** While we've become accustomed to a steady decline in hardware prices, the amount we pay for our OSes has stayed roughly the same. Nonetheless, you can still get a good deal on Windows XP if you take the time to search for the best prices. LS

Original Windows Version	XP Home Edition	XP Professional Edition
Windows 98/98SE	Yes	Yes
Windows Me	Yes	Yes
Windows NT 4.0	No	Yes
Windows 2000 Professional	No	Yes

If your version of Windows isn't listed here, you'll be unable to use an upgrade version of XP and will instead have to purchase the full version. One especially disappointing note is that Windows 95 users are left out in the cold. As they comprise a large portion of the current Windows user base, there are sure to be quite a few people grumbling about the cost of moving to XP. But, if you're still running Win95, it's unlikely that your system can handle XP with any efficiency. The last thing you'll want to do is saddle XP with antiquated hardware.

The full deal. If you can't save money by upgrading, your last option is to purchase the full edition of XP. This is the most expensive

prices are usually higher than those of online vendors, you may be able to get better service than on the Web. There's nothing like talking to a knowledgeable sales person about your specific hardware setup to ease the transition to a new operating system. Unfortunately, some superstores suffer from high turnover in employees, and the computer "guru" may not know much more than you do.

Mom-and-pop stores. The idea of small, mom-and-pop stores seems so traditionally American that it's surprising to discover that they're dying out due to pressure from online competitors and the superstores. When you examine the economics, though, the reason is

by Chris Jackson

Preparation's The Key

Install & Activate Windows XP, Step By Step

Installing Windows XP couldn't be any easier, you might think. Just put your installation disc in the CD-ROM drive and go. And it's true: The actual installation of XP is even more hands-off and automated than before. But you need to be aware of several installation issues *before* you put the CD in its drive, as well as some things you can do *after* the installation to make your life easier. From preparation to final configuration, we'll walk you through everything you need to know to get WinXP up and running on your machine. We'll also introduce you to the Upgrade Advisor, Dynamic Update, and Microsoft's new Product Activation scheme. Whether you're ready to get going right away or just scouting out the territory ahead, you'll benefit from learning about the installation process in advance.

■ **Preparation Is Everything.** Keep in mind that installing an OS (operating system) is not the same as installing other applications. The OS makes everything, including hardware and other programs, work together. When you install an OS, you create an entirely new foundation from which your PC will run. And getting a clean install (without any errors and nagging performance problems afterward) for an OS is far more crucial than for other installations: If your OS isn't set up properly, your whole computer will run poorly and unreliably. As such, preparation becomes very important to an OS install. Many programs and hardware components (along with their device drivers) are optimized for particular OSes. Changing the OS can affect performance and even render some programs and peripherals inoperable. Similarly, because you're altering the very core of what makes your PC run, you run the risk of data loss. You'll want to make sure to protect your most important files and other information.

Check your applications. The first step in preparing for an OS installation is to determine what other applications will need to be reinstalled, upgraded, or replaced afterward. For example: Outlook 2000 will have to be reinstalled after a WinXP installation, any Norton antivirus software will need to be upgraded, and many old DOS-based programs will have to be replaced. Identifying these issues (preferably ahead of time) will help you plan your work better and avoid any potentially irreversible surprises. The best way to go about this is to check with the manufacturer of each program and hardware device you use to see if the product you purchased is XP-compatible and, if not, whether there are upgrades

available. Windows offers a new Upgrade Advisor tool to help with this process, but you'd do well to double-check on your own for your most crucial tools.

Back it up. Next you'll need to back up everything from your old system that you can't stand the thought of losing. Most nonsystem files (those files that aren't a part of the OS itself) should remain intact after an installation, but the risk of error and data loss is unavoidable during an OS install. So if you've got years of financial records, scads of scanned photos, or a folder full of songs from your favorite obscure folk singer, back them up. The best ways to do this are to transfer the files to another PC over a network, copy them onto a removable disk (such as a floppy or Zip disk), or burn them to a CD-ROM. Again, XP offers a new installation tool to help you transfer files and settings from one version of Windows to another; if you have important files, however, you'll want to back them up separately just for added safety in case the automated (but somewhat more complicated) transfer process fails.

Gather all of your materials. Third, collect all your materials. Gather your WinXP CD-ROM and registration codes, a pen and some paper (in case you want to write down options or settings), and any installation CDs for other applications that you may need to reinstall. WinXP has more robust hardware support than previous versions, but you'll probably also want to grab your driver disks for any peripherals so you can set them up easily, if necessary. If you have a dial-up or broadband Internet connection, or use a LAN (local-area network), you may need to have account and settings information on hand about those connections. Contact your ISP (Internet service provider) or network administrator if you don't know what you need.
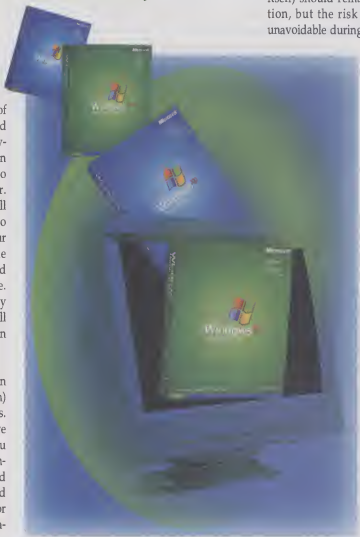
Start the install. Finally, boot up your computer and close any applications that are running. Check your system tray (the area of the Taskbar underneath the clock where little program icons congregate) to make sure you've closed all of these background applications, as well. You won't have to worry too much about preparing for settings and deciding which core and optional features to install. WinXP has more or less done away with the "Custom" install option; pretty much everyone gets the default feature set, to which you can then manually add or subtract later from the Control Panel. To get started, simply insert your WinXP installation CD in your CD-ROM drive. If nothing happens, double-click My Computer from your Windows Desktop and then double-click the appropriate CD-ROM icon to open your CD-ROM drive. Navigate to the Setup.exe application (you may or may not see the .EXE extension, depending on your existing Windows folder options) and double-click it to begin the installation.

■ The Installation's Welcome Screen. When the CD-ROM launches its setup application, the first thing you'll see is the Welcome Screen. This is your gateway to all of the tools and features of WinXP's Installation. You'll see three options: Install XP, Perform Additional Tasks, or Check System Compatibility. If your PC is already

Many manufacturers, such as Symantec (makers of Norton AntiVirus products), have product information specific to Windows XP on their Web sites.
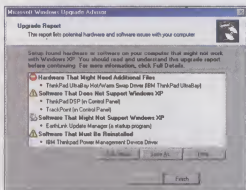
The Upgrade Report will help you identify potential problems before you install.

running WinXP, you'll see an option to Install Optional Windows Components, as well. The Install XP option is pretty self-explanatory, but be sure to take advantage of some of the features offered in the other areas before you make the leap.

Perform Additional Tasks. This option provides you with Windows-related tools to assist you in installing and setting up your WinXP system.

• Set Up Remote Desktop installs the software you need to remotely control a WinXP Pro PC. Only XP Pro comes with the ability to be the host machine (to be remotely controlled via Remote Desktop), but you can use this feature to set up any Windows 95 or higher PC as the client (controller) machine.

• Set Up A Home Or Small Office Network will launch the Network Setup Wizard, which will walk you through configuring a simple home or office network.

• Transfer Files And Settings collects and stores files, folders, and settings from your PC and transplants them to your new XP system. You can use this tool either to transfer data from one machine to another, or as a way to back up files and settings on a machine that you will be upgrading. Check out the "Use The Files And Settings

Transfer Wizard" sidebar in this article for more detailed instructions on this feature.

• Browse This CD lets you directly view the files and folders contained on the WinXP installation CD.

• View Release Notes displays information that was released too late to be included in the WinXP printed documentation. The most useful parts of these Release Notes describe known issues with specific hardware and software products. You should browse through the Notes to see if anything applies to something you own.

Check System Compatibility. This introduces you to one of WinXP's newest and handiest features. You can link to Microsoft's System Compatibility Web site, where you can search for known issues with specific hardware or software products. The option to Check System Automatically will launch the Upgrade Advisor, a new tool that will help you identify potential incompatibilities between your system and XP. See the "Use The Upgrade Advisor" sidebar in this issue for more detailed information.

Dynamic update. This is probably the first point at which you will encounter WinXP's Dynamic Update feature. Dynamic Update asks whether you want to check for the most current version of the installation files. If you agree, the installer connects to Microsoft via the Internet and looks for updates to the setup files. This utility is meant to ensure that you receive the most current install available, but it won't prevent you from installing the standard version on the CD if you aren't connected or choose not to use Dynamic Update.

■ Installation By The Numbers. Now that you've prepared for the installation, identified potential issues, and collected all your materials, you should be ready to begin. WinXP has

Dynamic Update ensures that you get the most current version of Windows XP's installation program.

what may be the simplest Windows installation yet. Users who like the control that the Custom Installation options provide will be disappointed with the "all default, all the time" model of XP. But some people who simply click Next and I Agree throughout every

*WinXP has more or less **done away with** the "Custom" install option; pretty much everyone gets the **default feature set**.*

Use The Files And Settings Transfer Wizard

The Files And Settings Transfer Wizard is a very useful utility included with Windows XP. You can use it to back up any type of Windows machine and restore your files, folders, and settings on your new WinXP system. Run the wizard as part of your installation prep to provide an added level of protection for your data. From the installer's Welcome Screen, choose Perform Additional Tasks and click Transfer Files and Settings.

The wizard will prompt you to select a transfer method. You can back up your data via a direct cable connection to another PC (most often using your

computer's serial port), over a network connection, to a floppy diskette or other removable media (such as a Zip disk), or to a removable or network drive. You can also back up your files locally, and then burn them to CD or move them to another location later, if you don't have a network connection handy.

You'll then have to decide exactly what you want to transfer. There is a trade-off here: the more you transfer, the longer it will take and the more storage space will be required. So you may want to skip items that can be easily reinstalled or restored. You can choose to transfer settings only (including

accessibility options, folder options, Internet Explorer settings, mouse and keyboard settings, network printers and drives, regional settings, screen saver selection, and taskbar options), files only (which includes everything in the Desktop, Fonts, My Documents, My Pictures, and Shared Desktop folders as well as MS Office and common multimedia files), or both. You can also create a custom list of settings and files to transfer; this lets you pick and choose what should be included.

The utility will then collect your files and settings. If you're just transferring settings, the

process should only take a minute or so. If you're transferring files and settings, the process can take 15 minutes or more.

The transfer files can range in size from 1MB to 100MB, so be sure you have enough storage space to (temporarily) hold the files. After you've completed your XP installation, simply open the Files And Settings Transfer Wizard again (from the CD or from within Windows), indicate you are now using the new computer, and begin the transfer. (Remember that the "new" computer can actually be the same machine as the "old" computer.) □

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setup should be pleased with the hands-off nature of WinXP's installation. You'll be prompted for information at the beginning and end of the installation; in between the machine will copy files and reboot itself several times.

Here are the steps you'll need to follow:

1 You should have already backed up your important data, gathered your materials, and closed all running applications. If not, do so now.

2 Insert the WinXP Installation CD. It should launch the installer and Welcome Screen automatically. If not, double-click My Computer on your Desktop, navigate to your CD-ROM drive, and double-click the Setup.exe application (you may also see this as simply "Setup").

3 This will launch the Welcome Screen. Select Install XP from the menu.

4 After you begin the installation, you may be prompted to decide whether to perform an upgrade or a new installation. If you purchased the upgrade version of WinXP, you won't have this option; you'll have to have a supported previous version of Windows already installed and ready to be upgraded. In short, an upgrade will retain all your applications, data, and settings, without removing

your current operating system. The OS is simply migrated, or upgraded, to WinXP from its existing state. On the other hand, a new installation installs the OS from scratch, removing and replacing any existing OS in the process. If you are going to perform a new installation, you might want to manually uninstall your old operating system beforehand, just to ensure a clean installation. If you don't already have a Windows OS on your hard drive or if you are running Windows 95 (which can't be upgraded to XP), you won't have a choice. You'll need to perform a new installation. Keep in mind, though, that only an upgrade installation can be uninstalled. If you perform a new installation, you won't be able to revert to your previous OS.

5 When prompted, accept the WinXP License Agreement and enter the product key you received with your CD. If you run into trouble here, double- and triple-check your entry to make sure that you haven't entered an incorrect

number or letter. (Watch out for the difference between the letter O and the numeral 0.)

6 If you chose to perform an upgrade installation or if you have the upgrade version of WinXP, you will next be prompted for an Upgrade Check. This will launch and run the Upgrade Advisor. If you haven't already done so, run an Upgrade Report to make sure the components of your PC are compatible with WinXP. If you already ran this utility in preparation for the install, there's no need to run it again.

7 If you chose to perform a new installation, you will have the opportunity to define your Setup Options. From the Advanced Options button you can set the installation to copy to or from a nonstandard location on your hard drive (this is not recommended for general use). Accessibility Options lets you opt to use a screen magnifier or have a narrator read the setup instructions

An upgrade installation gives you fewer options but keeps your settings and files intact. A new installation replaces all your previous settings.

aloud. You can also define the language in which your installation should take place (U.S. English is the default).

8 Just before beginning the actual installation and transfer of files, WinXP will prompt you to let it Get Updated Setup Files. This is the Dynamic Update feature that checks with Microsoft (via an Internet connection) for updates to the installation. This utility is meant to ensure you receive the most current install available, but the version on the CD should work just fine if you aren't connected or don't want to use Dynamic Update.

If you wish to use special Accessibility features or install to a nonstandard location, you'll need to perform a new Installation, rather than an upgrade.

9 If you're creating a new installation, you'll see a Welcome To Setup screen that will prompt you through several steps. First, press ENTER to begin installation (you can also quit or repair an interrupted install from here). Next you'll need to choose which partition (normally, but not always, you will have one partition per hard drive) on which to install WinXP. In most circumstances, you'll select your C: drive here. You'll need to decide what file system to use; you can use either FAT32 (file allocation table, 32-bit; what Windows 95/98 and Me users will have already) or you can convert your system to NTFS (New Technology File System; a newer and more secure file system used in WinNT and Win2000). Keep in mind that if you convert from FAT32 to NTFS, you can't convert back or uninstall the new OS. If you have an existing Windows installation on your selected hard drive, you will be warned that it will be irretrievably overwritten.

10 This is where the easy part begins: Let it run. The preparation and copying of files can take one to two hours or more, depending on the speed of your CD-ROM drive, your computer's processor, your hard drive, and other system variables. The screen and progress meter won't change much during this time, which can be a bit disconcerting, and the timer that tells you how much time is left isn't generally very accurate. WinXP isn't as good as

previous versions at letting you know that it's working away just fine: You may worry that nothing is happening, or that your installation has stopped working. Be patient and let the installation run. Only if you can detect no progress at all for a very long time (say, half an hour or more) should you shut down. If that happens, you should try to start the installation over, if possible.

11 After the installation process is complete, new (as opposed to upgrade) installations will have some options to enter in order to set up the system. You'll need to define regional and language options (for how numbers, dates, and other information are displayed), enter your name and (if appropriate) your organization, provide your computer with a name, enter your modem and/or network settings (if applicable), and set the date and time (remember that Windows defaults to U.S. Pacific time: You'll want to change your time zone accordingly). Finally, you'll need to set up your Internet connection, if necessary. If you performed an upgrade installation, all of these settings will be transferred from the old OS to XP.

12 Both new and upgrade installations will need to activate WinXP. Product activation is another new feature of XP that was introduced as a piracy prevention measure. Product Activation combines your hardware profile with your product key to create a unique identifier for your PC and your copy of WinXP. You can activate the OS now or do it later, but you have only 30 days to activate or WinXP will stop working. The easiest way to activate is online; XP will connect to Microsoft with your unique identifier and verify that your product key hasn't already been used. If you don't have Internet connectivity, you can wait to activate manually (Select Start, All Programs, and Accessories. Choose System Tools and Activate Windows) or you can activate over the phone. See the "WinXP Product Activation" sidebar in this article for more detailed information on activating XP.

13 The installation may prompt you to create an MSN account. This is one of the features that critics have highlighted as an example of Microsoft using its OS monopoly to promote its other services. If you already have an MSN account, or if you received one as a part of buying your computer, you can set it up now. If you have another ISP, you should skip this setup and install your own ISP's software later.

14 The final step for XP Home users is to create user accounts. You should create separate accounts for each person using the computer. At this point, you just need to name

Use The Upgrade Advisor

When you click the prompt to Check System Automatically, the Windows Upgrade Advisor will launch. The Upgrade Advisor is a tool designed to scan your system for possible hardware and software issues that might arise as a result of a WinXP installation. The utility can take as long as 15 to 20 minutes to run, depending on how many applications and peripherals you have installed. After scanning your computer, the Upgrade

Advisor will prepare an Upgrade Report that lists potential compatibility issues. You can view a summary or detailed version of the results on-screen, save a copy of the report as a text file on your hard drive, or print the report. The report will list hardware components and software applications that are either not supported in WinXP or will need to be upgraded in order to run under XP. In the case of hardware, the report will also tell you

which components will need updated drivers from the manufacturer in order to work with the new OS. The Upgrade Advisor can be a valuable tool for you to use in preparation for an XP install. Use it as your starting point, so you know in advance which issues you'll have to fix. Just to be safe, though, you should check with the manufacturer of any crucial hardware or software for WinXP updates even if the Upgrade Advisor doesn't anticipate trouble. □

WinXP Product Activation

Product Activation is a new feature that Microsoft has built into their XP product line. Essentially, WinXP requires activation to be fully functional. Activation, different from (optional) registration in that it doesn't include any personal information about the user, attempts to verify that a given installation of XP has been legitimately licensed and only used once. This is a good thing in the sense that it helps prevent software piracy, which costs consumers millions of dollars a year. It can be a hassle, though, if you don't have an Internet connection or if you change your PC's hardware often. The unique identifier that Microsoft uses for activation is based on a combination of your product key and your computer's "hardware profile." If that hardware profile changes radically enough or if you buy a new computer and want to move XP from the old to the new machine, you'll need to call Microsoft to reactivate your OS (operating system).

You can activate during the installation itself: XP will create a secure connection, transmit your info, and activate the OS for you, all behind the scenes. You can also activate online at any time simply by going to System Tools in the Accessories menu and choosing Activate Windows. You'll also be periodically reminded to activate if you haven't done so. If you don't have a modem or other Internet connection, you can call Microsoft (the activation screen will provide you with a toll-free number) to activate over the phone. □

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each account. From the User Accounts area of the Control Panel, you can add or remove accounts and change settings for each account. (Such settings can include instituting password-protection or limiting file access, for example).

At this point, your XP installation should be complete. You'll be prompted to log in and then offered an introductory tutorial to XP. If you chose not to activate as a part of the installation, you will also be reminded that you have 30 days to do so.
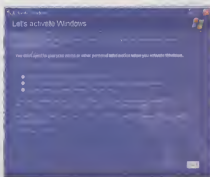
Microsoft Product Activation is designed to help prevent software piracy. You can choose to activate Windows XP online or over the phone.

If you're happy with your default settings, you can simply begin using XP, reinstalling or upgrading any software as needed. If you want to adjust your settings and add or remove Windows components, simply click your Start Menu, open the Control Panel, and double-click Add Or Remove Programs. Choose Add/Remove Windows Components to choose which Accessories, Internet tools, and networking services you wish to use. If you backed up your system prior to installation with the Files And Settings Transfer tool (which would've been a very smart thing to do), you can now complete the process and import anything you elected to transfer. From the Start menu, click All Programs, Accessories, then System Tools. Open the Files And Settings Transfer Wizard; indicate that this is the "new" computer, the one you want to transfer files to.

■ **Uninstalling XP.** In certain circumstances, you may find that you'd like to uninstall WinXP. You might discover you have some incompatible hardware or can't replace a particular piece of important software. Perhaps you simply don't like the design and usability changes. Uninstalling is, on the face of it, a fairly straightforward operation. However, there are several things to keep in mind that complicate the picture somewhat. If you performed a new installation or converted your file system to NTFS, you won't be able to uninstall XP or roll the file system back. The only way to return to your previous system is to reformat your hard drive entirely (after booting from a Windows boot disk) and then reinstall everything from scratch. Uninstalling is also fraught with peril: Your risk of data loss or corruption is even greater during an uninstall than during an installation. If you simply don't like the new look and feel of XP, you can opt to use the classic Windows design. Just right-click your Desktop, choose Properties, and click the Themes tab in the Display Properties dialog box. Select Windows Classic as your current theme and then click Apply.

If you have more fundamental problems with WinXP, the Add Or Remove Programs tool from the Control Panel will give you the option to uninstall. (Remember that this option will not be present if you did a "new" install.) Scroll down and look for Windows XP Uninstall. You'll then have the option of either uninstalling XP or removing the backup of your previous OS. To uninstall, choose Uninstall, click Yes to revert to your previous OS when prompted, and the uninstallation will begin. The system may reboot a few more times and then leave you where you began.

■ **Easiest Install To Date, But Watch Out For The Pitfalls.** Though Microsoft has made WinXP's installation the easiest Windows install yet, there are still several potential pitfalls to keep in mind. Make sure your hardware and software are compatible with the new OS and back up any important data. When in doubt, avoid doing anything irreversible. If you keep these tips in mind and make use of the new installation tools available, you can achieve a graceful entrance to the world of WinXP. [LS]

by Gregory Anderson
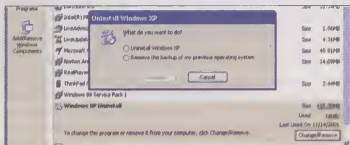
If you performed an upgrade installation, you can later uninstall Windows XP.

Surface Transformation
The Windows XP Desktop Is Not Just A Pretty Face

With a fresh design and a sleek layout, the Windows XP Desktop embodies the spirit of Microsoft's latest OS (operating system). You should familiarize yourself with the Desktop and its capabilities if you want to reap all the benefits of using WinXP.

■ **The Evolution Of A Desktop.** The Desktop was born with the release of Windows 1.0 in November 1985. Through the subsequent releases of Windows 2.x and 3.x, these early Desktops served merely as shaded backdrops for the application windows. They were not a vital component of the OS.

That all changed with the release of Windows 95 nearly a decade later. This version of Windows featured the debut of shortcuts, the Taskbar, the Start menu, and most of the other basic OS tools we take for granted today. Win95 (but not Windows NT 4.0, which was launched at about the same time) also included a variety of multimedia

elements, including Desktop themes and screen savers. In such an environment, the Desktop became very important. After all, that's where the action was.

Windows 98, which came out a few years later, was responsible for introducing the Active Desktop. The Active Desktop, which looked a lot like the Win95 Desktop, brought extended Internet functionality to the OS. Such technology manifested itself most conspicuously on the Desktop in the form of a Channel Bar that provided one-click access to user-selected Web content. Unfortunately, perpetual high-speed Internet connections were rare at the time, and few users were able to take full advantage of this aspect of the Active Desktop. The Channel Bar has since fallen by the wayside.

The Active Desktop was not a failure, though. The next version, Windows Me (Windows Millennium Edition), demonstrated the lasting success of the Active Desktop by putting Internet accessibility into almost every component of the OS, including Help And Support and several games. Windows 2000 did

the same thing. To this day, Internet accessibility remains a trademark function of the Windows Desktop.

Now comes WinXP, representing the apex in Windows Desktop development so far. The most striking thing about WinXP is its appearance. The new Desktop completely changes the feel of the OS and yet remains faithful to precedent by sporting the old familiars, such as the Taskbar, Start menu, and Recycle Bin. To really understand the new Desktop, however, you must understand the reason behind its design: personalization.

The entire WinXP OS focuses on letting you create a customized environment that enhances machine performance and personal productivity at every level. This focus reveals itself on the Desktop in a design that is more intuitive and customizable than any of its predecessors. Previous OSes came preloaded with so much Desktop baggage that users often felt as if Microsoft was dictating which programs and tools they should be using. This time around, Bill Gates and company have developed a Desktop that is essentially bare, similar to the top of a desk. What you decide to put on that desk is up to you.

Most of WinXP's personalization settings are handled by user accounts. For more information, see "Take Advantage Of User Accounts" on page 38 in this issue.

■ **Make Your Acquaintance.** Even though the Desktop is empty, it still has a lot to offer. The Desktop serves as the portal to Microsoft's most powerful OS released to date. To master WinXP, you need to familiarize yourself with the Desktop's features.

Several characteristics of the WinXP Desktop distinguish it from its predecessors. For example, the Desktop is almost completely devoid of icons by default. The only one that graces the Desktop after installation is the Recycle Bin. My Computer, My Network Places, and all of the other icons that would normally appear on the Desktop have been relegated to the Start menu. The resulting absence of icons leaves the Desktop with a crisp, clean feel. You then can add icons to

the Desktop according to your personal preferences.

Another noticeable characteristic of the new WinXP Desktop is the redesigned Start menu. Although it's still in its usual location, this component assumes a more significant role within the OS. For all intents and purposes, the Start menu has become the central command module for WinXP. It is where you go to access programs, shutdown options, and the Control Panel. It also provides access to the content that would traditionally end up on the Desktop, including My Computer and My Network Places, as well as shortcuts to the My-related folders: My Documents, My Music, and My Pictures.

A third characteristic of the Desktop is the Taskbar, which takes on a new look and more intuitive functionality while still maintaining its expected role within the OS. For example, the Taskbar now groups together related buttons when too many buttons accumulate as you minimize windows. This reduces clutter and simplifies the process of closing all windows associated with a single program (just right-click the group's button on the Taskbar and select Close Group from the resulting pop-up menu).

The new Taskbar also hides those rarely used notification icons that appear in the System Tray (an area of the Taskbar located at the opposite end as the Start button and identified by its primary constituent: the clock). This, too, reduces clutter.

A final characteristic of the new Desktop is the default placement of the Recycle Bin in the lower-right corner of the Desktop rather than along the left side of the screen, but you can move it anywhere you want. As mentioned above, the Recycle Bin is the only icon that appears on the WinXP Desktop by default.

■ **In Context.** Once you become acquainted with the new Desktop and its peculiarities, it's time to start using it to your advantage. The primary control mechanism for the Desktop is its context menu. This menu lets you create and organize Desktop icons, as well as access the Display Properties dialog box. You can open the context menu by right-clicking the Desktop. When the menu appears on-screen, you'll see at least seven commands: Arrange
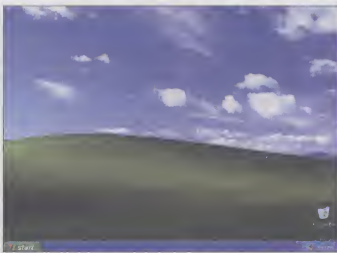
The Windows XP Desktop: Note the new look, lack of icons, and relocation of the Recycle Bin to the lower-right corner.

Icons By, Refresh, Paste, Paste Shortcut, Undo, New, and Properties.

Properties. Even though this command appears at the bottom of the context menu, it is the first one you should learn about. Selecting the context menu's Properties command lets you access the Display Properties dialog box. Use this dialog box to modify the appearance of the Desktop, add Web content, set the screen saver, and adjust the monitor settings. These display properties are all relevant to the Desktop. The ones that you will probably use the most are those that help you configure the screen saver, wallpaper, themes, and color schemes.

To set the screen saver, for instance, open the Display Properties dialog box and click its Screen Saver tab. From there, choose a screen saver from the Screen Saver drop-down menu. You then can click the Settings button to review your options for tweaking the screen saver. You also can specify how many minutes of inactivity must transpire before the screen saver is activated. Indicate this number in the Wait field.

In addition to setting the screen saver,

The context menu gives you several options for arranging Desktop icons. Arranging the icons by Name, as shown here, puts them in alphabetical order.

you also can choose a new wallpaper (an image or color that serves as the background on the Desktop) from within the Display Properties dialog box. Click the Desktop tab to access the wallpaper settings, and choose an image from the Background scroll-down menu or select a solid color from the Color drop-down menu. Whatever image or color you pick will appear as the backdrop for your Desktop.

You can change the OS color scheme, too. The scheme determines the color of the title bars, menus, 3-D objects, and other display elements. To change the scheme, click the Appearance tab and select a new scheme from the Color Scheme drop-down menu. You only have three options if the Windows And Buttons drop-down menu is set to Windows XP Style. But if you switch the Windows And Buttons drop-down menu to Windows Classic Style, the Color Scheme drop-down menu will present dozens of options.

To completely redesign the appearance of the Desktop all at once, you should choose a new theme. A theme is a collection of multimedia files that replaces the default wallpaper, icons, pointers, and system sounds. Think of it as a new wardrobe for the Desktop. You'll find the themes listed in the Theme drop-down menu on the Themes tab of the Display Properties dialog box. Unfortunately, WinXP ships with only two themes: Windows Classic and Windows XP. Get more themes by purchasing Microsoft Plus! for Windows XP ($39.95; 800/426-9400, 425/882-8080; http://www.microsoft.com/windows/plus).

Themes, color schemes, wallpapers, and screen savers provide a fun way to enhance the appearance of the Desktop,

but you also should focus some attention on the Desktop's less eye-catching settings. These settings are accessible through the Desktop tab of the Display Properties dialog box. From there, click the Customize Desktop button located below the Background list.

On the General tab of the resulting Desktop Items dialog box, you'll have the option of selecting specific icons (My Computer, My Documents, My Network Places, or Internet Explorer) for display on the Desktop; changing the appearance of the Desktop icons; and running the Desktop Cleanup Wizard. This wizard walks you step by step through the process of removing rarely used icons from the Desktop, and it places the removed icons in an Unused Desktop Shortcuts folder on the Desktop. The Desktop Cleanup Wizard is set by default to run once every 60 days.

The Web tab of the Desktop Items dialog box lets you put Web content on the Desktop. To do so, click the New button and type the **URL (uniform resource locator;** a Web address) in the resulting Location field. Click the OK button to load the content on to the Desktop. The content will appear in a small window that remains on the Desktop at all times.

New. Use the New command to create shortcuts, folders, and data files on the Desktop. Clicking this command pulls up a submenu that contains, among other things, the names of key file types such as WAV sound files, bit-mapped images, and text documents. When you select one of these options, a new shortcut of that type appears on the Desktop. Type a name for the shortcut and press ENTER to register it with the OS.

Clicking the newly christened shortcut opens a blank file that is waiting to receive data input. WinXP saves the new files to the Desktop folder. For more information about the Desktop folder, see the sidebar titled "The Desktop: An Inside View."

Undo. The Undo command can present itself in several ways, including Undo Copy, Undo Delete, and Undo Paste. Whatever its format, the important thing to remember is that this
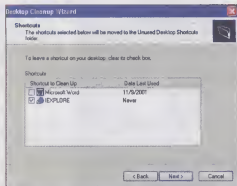
The Desktop Cleanup Wizard moves unused and infrequently used icons, such as these Microsoft Word and Internet Explorer shortcuts, to the Unused Desktop Shortcuts folder.

command lets you reverse previous activity on the Desktop. If you accidentally delete a shortcut, for instance, you can use the Undo command to restore the shortcut to its rightful place on the Desktop.

Alternately, if you decide you do not want a shortcut that you recently placed on the Desktop, you can use the Undo command to wipe it away. Moreover, you can use the Undo command several times in a row to reverse a sequence of activity.

The Undo command will not appear on the context menu if there has been no previous activity on the Desktop.

Paste and Paste Shortcut. The Paste and Paste Shortcut commands both help you add content to the Desktop; the difference is that the former lets you add actual files to the Desktop, whereas the latter lets you create Desktop shortcuts to files stored elsewhere on the system.

To understand the difference between the commands, consider a situation in which you select and copy a paragraph of text in a Word document. If you open the Desktop's context menu and select the Paste command, the resulting Desktop icon will be a new document that includes the copied paragraph of text. This new document will be stored in the Desktop folder on the hard drive. If you use the Paste Shortcut command instead, the resulting Desktop shortcut will point to the document from which the paragraph was copied. The targeted document remains in its original location on the hard drive and only the shortcut is stored in the Desktop folder.

So, when you want to create a shortcut to a selected file or program, use the Paste Shortcut command. When you want to create a new file altogether, use the Paste command.

Refresh. Select the context menu's Refresh command to update your Desktop icons and Web content. It's as simple as that.

Arrange Icons By. The Arrange Icons By command provides access to a submenu of organization options. The submenu arranges these options into three groups.

The first group includes the Name, Size, Type, and Modified commands. These

commands describe the method by which Desktop icons (if any) will be arranged. Choosing Name, for instance, organizes the icons alphabetically by name. Choosing Size organizes the icons according to the size of their corresponding files. The Type option organizes the icons by file and program type, while Modified organizes the shortcuts according to the date that their corresponding files were most recently edited or accessed. Select one of these four commands to classify your icons with minimal effort. Note that when you use any of these commands, the Recycle Bin is shifted automatically to the upper-left corner of the Desktop.

The second group of commands includes the Auto Arrange and Align To Grid settings (a third setting, Show In Groups, is not a valid option on the Desktop). These settings, which you can toggle on or off, automate Desktop organization. The Auto Arrange setting, for instance, arranges icons in neat rows, starting in the upper-left corner of the Desktop. If you move or delete one of the shortcuts, WinXP automatically positions another icon in its place to keep the rows and columns in order.

The Align To Grid command works a little differently. Rather than arrange the icons in rows and columns, it tells WinXP to situate the icons according to coordinates on an invisible grid that covers the screen. This lets you position icons neatly in various places on the Desktop. Either way, you can tell when these settings are active by the presence of a tiny check mark next to them.

The third group of commands includes Show" Desktop Icons, Lock Web Items On Desktop, and Run Desktop Cleanup Wizard. The Show Desktop Icons setting lets you show or hide all of the Desktop icons (including the Recycle Bin). When this setting has a check mark next to it, you'll be able to see icons on the Desktop. The Lock Web Items On Desktop setting gives you the option of securing Web content so that it cannot be resized or moved on the Desktop. And the Run Desktop Cleanup Wizard option, the final command in this group, provides access to the Desktop Cleanup Wizard we described earlier in this article.

■ **More Options.** Although the Desktop is a distinct component of the OS, its impact extends far beyond the color of the wallpaper and the arrangement of shortcuts. To fully appreciate the power of the Desktop, you must acquaint yourself with its immediate neighbors: Desktop icons, the Start menu, the Taskbar, and the Recycle Bin. You also should know where some of the OS' other key components fall in relation to the Desktop.

The icons. The Desktop serves as a bulletin board for icons of every type. Some of these icons are shortcuts that point to files and programs stored in other parts of the PC. Other icons represent the contents of the Desktop folder and point to key programs, folders, and system components, such as My Computer or My Documents.

One way to get the most from these icons is to use the context menu associated with each one. By right-clicking a Desktop icon, you can access an array of file and program management functions. Right-clicking an icon that points to a text document, for instance, will pull up a context menu containing commands for opening,

printing, e-mailing, or renaming the document. Similarly, right-clicking an icon that points to a program will open a context menu containing commands that let you pin the shortcut to the Start menu or run the program under another user account. Each icon will have its own unique context menu, so you will have to experiment with each to learn all of your management options.

Start menu and Taskbar tweaks. You can tweak the way the Start menu and Taskbar work within the OS by right-clicking the Start button and selecting Properties from the resulting pop-up menu. This opens the Start Menu And Taskbar Properties dialog box. For more information, see "Ready, Set . . . Start" on page 28 in this issue.

One Taskbar function we should mention here is the Show The Desktop command. This command, which you can activate by right-clicking the Taskbar, provides immediate access to the Desktop by minimizing all open applications.

The ever-present Recycle Bin. Nothing much changes for the Recycle Bin in WinXP. It holds your deleted files and programs until you decide you really don't need them anymore, at which point you can empty it and eliminate the files and programs for good. Double-clicking the icon opens the Recycle Bin so you can view its contents and access its Restore and Empty commands.

Right-clicking the Recycle Bin and choosing Properties from the resulting pop-up menu opens the Recycle Bin Properties dialog box. In this dialog box, you can set the size of the bin and configure it to handle discarded data from multiple drives.

Other components to consider. Microsoft developed this OS, as it did earlier versions of Windows, so that all components work
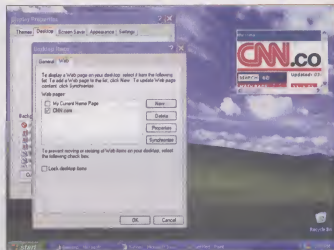
Add live Web content to your site by accessing the Desktop Items dialog box. The resulting content displays on the Desktop in a small window, similar to the CNN.com window shown here. Resize the window to view more of its content.

together seamlessly. The Control Panel, for instance, now makes it easier than ever to modify the appearance of the Desktop. All you do is open the Control Panel (you can access it through the Start menu) and select the Appearance And Themes category. Inside, you'll find options such as Change The Computer's Theme and Choose A Screen Saver. Choose the option that describes what you want to do and WinXP will present the dialog box that can help you do it.

A family of components that plays especially well with the Desktop are the My-related folders: My Documents, My Music, and My Pictures. By loading these folders on the Desktop, you have one-click access to your text documents, graphics files, and MP3 tracks. One of the easiest ways to load a My-related folder on the Desktop is to open the Start menu and drag the desired folder to the Desktop.

A final WinXP component worth noting is the Search Companion. This handy search tool (accessible by clicking Search on the Start menu) not only helps you locate files on your system or network, but it also helps you create Desktop shortcuts to those files once you find them.

■ **A Bare Necessity.** Necessary or not, the Desktop will become an important part of your life. It is your virtual workspace. It is the gateway to your computer system. And whether you load it with icons or preserve its pristine and nearly naked state, it is the face of WinXP. [LS]

by Jeff Dodd
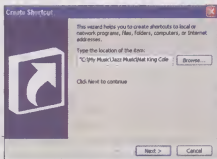
Choosing the New and Shortcut commands from the Desktop context menu opens this dialog box. Follow its instructions to create a new Desktop shortcut.

Ready, Set . . . Start

The Heart Of Windows XP Is Its Start Menu

For those who may be unfamiliar with the Classic Start menu, we'll describe it briefly. Its key components are the Programs, Documents, and Settings folders. The Programs folder, which is further divided into several subfolders, contains shortcuts to the programs and utilities installed on your computer. The Documents folder provides one-click access to your recently accessed data files. The Settings folder includes your key system settings, including the Control Panel; your computer's network connections; its printer and fax settings; and the aforementioned Taskbar And Start Menu Properties dialog box.

The Classic Start menu also links to the Windows Search utility, Help And Support services, and the Run dialog box. It contains the Turn Off Computer and Log Off commands, as well as icons for various shortcuts installed manually by the user or installed automatically during software setups.

You can customize the Classic Start menu by opening the Settings folder, clicking the Taskbar And Start Menu command, selecting the Start Menu tab in the resulting dialog box, and clicking the Customize button that corresponds to the Classic Start menu. The Customize Classic Start Menu dialog box gives you the option of adding, removing, and organizing elements on the menu; clearing the list of recently accessed documents; and specifying how the Classic Start menu presents its contents.

One look at the Start menu says it all: Windows XP is a different kind of OS (operating system). Completely redesigned with a new color scheme and layout, the Start menu has officially become the command center within Windows. You can access every feature of the OS, including such Desktop mainstays as My Computer and the Recycle Bin, from this nifty menu and its collection of folders and subfolders. It may take some getting used to, but we're confident you'll find the new Start menu to be a valuable ally in your quest for increased productivity and a more pleasurable Windows experience.

■ **The Classic Start Menu.** As great as the WinXP Start menu is, we should point out that you can still use the old version if you prefer. The old version, which Microsoft refers to as the Classic Start menu, looks and acts just like the Start menu you've grown accustomed to using in Windows 95/98 (Win9x), Windows NT, Windows Me, and Windows 2000.

You can activate the Classic Start menu by right-clicking the Start button (positioned by default in the lower-left corner of the Desktop) and selecting Properties from the pop-up menu that appears on-screen. On the Start Menu tab of the resulting Taskbar And Start Menu Properties dialog box, select the Classic Start Menu option and click the OK button to register the change. Immediately you will see a series of icons, including My Computer and My Network Places, appear on the Desktop. And the next time you click the Start button, you'll see the traditional Start menu with its list of programs, documents, and system settings.

■ **New & Improved.** The Classic Start menu certainly has much to offer, and many users will be tempted to activate it without giving the new and improved Start menu a chance. However, we advise against such a move. Microsoft altered the design and layout of the Start menu for more than mere aesthetic purposes. The new menu offers many benefits, not the least of which are navigational simplicity and a spotless Desktop. Once you get the hang of using the new Start menu, it's unlikely you would ever go back to the old one.

The new Start menu is really a composite of your entire computer system. It consists of several parts, each of which represents a different

component or function (or family of components or functions): user identification, recently and frequently used applications, the My-related folders, My Computer, computing tools, All Programs, and log off and turn off options. These parts come together in one neatly organized box that pops up on-screen whenever you click the Start button.

User identification. One of the first things you're bound to notice when opening the new Start menu is the username and picture positioned at the top of the Start menu. This is visible evidence of WinXP's focus on providing a personalized end user experience. The username identifies which individual in your home or office is currently logged into the OS, which in turn determines Desktop appearance, the contents of the Favorites folder, and even document availability. If you do not see your username displayed at the top of the new Start menu, you should use the Switch User feature (accessed by clicking the Log Off button) to log in with your username and password.

The pictures that accompany the usernames are assigned by default, but you can change them quite easily. Just open the Start menu and click your current picture. A User Accounts window will appear on-screen and request that you select a new picture for your account. WinXP will display a selection of more than 20 default images you can use. These images are the digital equivalent of pieces in a board game: a dog, a plane, a car, a fish, a motorcycle, etc.

If you really want to stir things up, put your own picture at the top of the Start menu. Do so by accessing the User Accounts window and clicking the Browse For More Pictures command. In the resulting Open dialog box, peruse the contents of your storage drives to find an image that represents you. It could be a personal portrait, a picture of your home, a digital icon, an image from the Internet, or just about anything you want it to be.

After finding the image you want to use, highlight it and click the Open button. The Open dialog box will close and the selected picture will appear next to your username in the User Accounts window. It also will appear at the top of the Start menu and on the WinXP Welcome screen.

Recently and frequently used **applications.** Most of the Start menu's left half is filled with

the names of applications. Each name is a shortcut (link to a file or application). The shortcuts are divided into two groups.

The top group, called the Pinned Items List, includes shortcuts to the two programs that Microsoft considers important to most users: a browser and an e-mail application. Internet Explorer and Outlook Express are the default selections, but you can change them. All you have to do is right-click the Start button and select Properties from the pop-up menu. On the Start Menu tab of the Taskbar And Start Menu Properties dialog box, click the Customize button that corresponds to the new Start menu. This displays the General tab of the Customize Start Menu dialog box.

At the bottom of this dialog box, you have the option of selecting which browser and e-mail application you want to appear on the Start menu. Select the desired browser and e-mail application from the appropriate fields (each field will present the names of the browsers and e-mail applications installed on your computer) and click the OK button to accept the changes. If you decide that you don't want these shortcuts on your Start menu, simply click the Internet (corresponds to the Web browser) and E-mail (corresponds to the e-mail application) checkboxes to deselect them.

To this top group, you also can add shortcuts to programs you consider important. Open the Start menu and click the All Programs command. Locate the desired program and right-click it, then select the Pin To Start Menu command from the resulting pop-up menu. A matching shortcut will appear in the Pinned Items List. You can add as many shortcuts as you want, but we

suggest keeping the total number of shortcuts to fewer than five for the sake of manageability. The shortcuts you place in the Pinned Items List remain on the Start menu at all times.

Unlike the shortcuts in the top group, those in the bottom group are constantly in flux. That's because this group of shortcuts includes the applications you have accessed most recently (excluding those represented in the Pinned Items List). The Start menu displays the six most recently accessed programs by default, but you can increase or decrease this number if you want.

Access the Customize Start Menu dialog box and click the General tab. In the Programs area of the resulting tab, select a number between 0 and 30 from the Number Of Programs On Start Menu field. We suggest choosing a number between 4 and 8. While you're here, you can click the Clear List button to clean out the Start menu's current list of recently accessed programs. After setting the Number Of Programs On Start Menu field and using the Clear List feature, click the OK button to save your changes.

All Programs. So, now that you know where the Start menu lists shortcuts to your frequently and recently accessed programs, you have to figure out where the shortcuts are to everything else. They're hidden behind the All Programs link, which is located in the lower-left corner of the Start menu. Click this link to open a menu of shortcuts to your programs and utilities.

This menu contains individual shortcuts as well as folders and subfolders of shortcuts. It is

The new and improved Start menu serves as a one-stop command center for the entire operating system. This leaves the Desktop empty of icons (except for the Recycle Bin).

organized in much the same way as the Classic Start menu, with folders for Accessories, System Tools, Games, and other categories you'll recognize from your use of earlier versions of Windows. The menu will expand as you add applications to your system.

You can edit and arrange the contents of the All Programs menu by right-clicking the All Programs link and selecting Explore from the resulting pop-up menu. This opens the Start Menu window. Much of the content found in the All Programs menu is listed in the Start Menu subfolder that corresponds to your username as well as the Start menu subfolder located within the All Users folder (the folders are located in the Folders pane of this window).

Within the Start Menu window, you can use the drag-and-drop technique to organize the shortcuts on your Start menu. Create new folders by opening the File menu, selecting New, and clicking Folder. You can delete shortcuts (deleting a shortcut does not remove the program from the computer) by right-clicking them and choosing Delete from the resulting pop-up menu. Just make sure you keep your changes within the Start menu subfolders; otherwise, you risk moving around integral system folders that should not be tampered with. Close the window when all changes are complete.

My-related folders. Recent versions of Windows come equipped with several organizational tools that we will refer to as My-related folders. Windows uses these folders as default storage bins for certain file types. Text documents, for instance, are tucked into the My Documents folder by default. Graphics of every shape and size go into the My Pictures folder, and MP3 and other audio files are saved in the My Music folder.

These folders are treated almost like **root** directories (top-level folders in a hierarchical storage structure) by the OS, and WinXP puts them directly on the Start menu for easy access. You'll find shortcuts to three of the My-related folders—My Documents, My Pictures, and My Music—posted in the top right half of the Start menu. A

fourth folder, the My Recent Documents folder, may join these three if you choose to put it there.

To add the My Recent Documents folder to the Start menu, open the Customize Start Menu dialog box and select the Advanced tab. In the Recent Documents area of the resulting dialog box, select the List My Most Recently Opened Documents checkbox and click OK to save the change.

The next time you open the Start menu, you'll see the My Recent Documents folder firmly ensconced between the My Documents and My Music folders. The new folder contains shortcuts to data files you've recently opened, but you can clear this list if you want. Return to the Recent Documents area of the Customize Start Menu dialog box and click the Clear List button. This merely removes the file names from the My Recent Documents folder; it does not delete the files from your hard drive.

As handy as the My-related folders can be, advanced users may want to tweak them a little to better suit their high-end needs. One way to do so is to rename the folders. Right-

You can set the My-related folders to display as links or menus. Choosing the latter, as we did with the My Music folder, lets you view the folder contents directly from the Start menu.

click the selected My-related folder and select Rename from the resulting pop-up menu. Type the new name of the folder and press the ENTER key. That's all there is to it.

Another tweak involves changing the location of the folder associated with the Start menu's My Documents folder shortcut. You can make this change by opening the Start menu, right-clicking the My Documents folder, and choosing

Programs cited in the upper-left corner of the Start menu make up the Pinned Items List. You can specify which Web browser and e-mail application appear on this list.

Properties from the resulting dialog box. The My Documents Properties dialog box will appear on-screen. On the Target tab of this dialog box, enter the location of the new folder in the Target field. Alternately, you can search for the folder by clicking the Move button and navigating the resulting dialog box. Either way, click the OK button after making the change.

If you receive a message asking whether you want files from the My Documents folder copied to the new folder, select No. This preserves the state of each folder as separate entities. If you later decide that you prefer the original configuration of the My Documents folder, return to the Target tab and click the Restore Default button.

Finally, you can modify the way the Start menu displays the My-related folders. Open the Customize Start Menu dialog box and select the Advanced tab. In the Start Menu Items scroll-down list, you will find entries for the My-related folders. Each entry contains three options: Display As A Link, Display As A Menu, and Don't Display This Item. The default selection is Display As A Link.

My Computer. Among the most dramatic design changes in WinXP is the relocation of the My Computer icon from the Desktop to the Start menu. You now will find this icon on the right half of the Start menu, next to the My-related folder shortcuts. Despite its new position, the My Computer icon functions the same as always. Click it once to access the My Computer window, which contains a list of your PC's storage drives and external devices, as well as shortcuts to key folders and system tasks.

Right-clicking the My Computer icon opens the door to several activities. For example, right-click the My Computer icon and select Manage from the resulting pop-up menu to access the Computer Management dialog box. Right-click and select Rename to change the name of the My Computer icon. Right-click and select Show
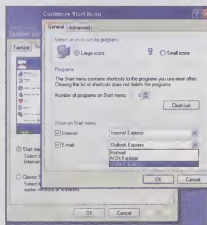
On Desktop to restore the My Computer icon to its old location in the top-left corner of your Desktop. Or right-click and select Properties to open the System Properties dialog box.

As with the My-related folders, you can use the Advanced tab of the Customize Start Menu dialog box to personalize the My Computer icon. Locate its corresponding entry in the Start Menu Items field to choose whether My Computer should appear on the Start menu as a link, as a submenu, or not at all. After making your selection, click OK to save your changes.

Computing tools. Rounding out the right half of the Start menu are those familiar Windows capabilities that we'll refer to as computing tools: Control Panel, which contains the OS' major configuration utilities; Help And Support, which provides general information as well as step-by-step tutorials for using WinXP; Search, which lets you scour the computer's storage drives in pursuit of a particular file or folder; and Run, which serves the same purpose as the old DOS command prompt, letting you launch programs and access files using only text commands.

Customization options that pertain to these tools can be found on the Advanced tab of the Customize Start Menu dialog box. There, in the Start Menu Items scroll-down list, you can choose how to display the Control Panel. The options are: as a link, as a menu, or not at all. The options are not so plentiful in regard to the Help And Support, Search, and Run tools. Basically, you either display them as links or they don't appear on the Start menu at all.
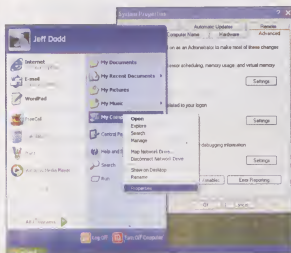
Even though the My Computer icon is no longer on the Desktop, you can still access the System Properties dialog box by right-clicking the My Computer icon on the Start menu and choosing Properties from the resulting pop-up menu.

To end Windows sessions. As strange as it seems, you need to visit the Start menu when you're ready to end your Windows session. The Log Off and Turn Off Computer buttons, both of which are found at the bottom of the Start menu, can help you do it.

Clicking the Log Off button presents two options: Switch Users, which provides immediate access to the WinXP Welcome screen, letting someone else log on and use the OS; and Log Off, which also provides access to the Welcome screen, except that it does so only after logging you off the computer. Use these options when you know you'll be away from your computer for a short while and want to leave the computer open for other users in the meantime.

Clicking the Turn Off Computer button, on the other hand, presents three options: Standby, Turn Off, and Restart. Selecting Standby puts the computer in a low-power sleep mode. You can revive the computer from Standby mode simply by touching any key on the keyboard or moving the mouse. Selecting the Turn Off option will close down the OS and shut off all power to the computer. You must turn the computer on (by pressing the power button) when you want to use the computer again. Or you can select the Restart option for those times when you need to restart the computer, such as after a software installation.

If you accidentally click the Log Off or Turn Off Computer button from the Start menu and want to return to work within WinXP, simply click the Cancel button that is presented along with the various log off and shutdown options.

■ **Other Customization Options.** In addition to the specific customization options described above, the Start menu offers several other ways that you can personalize its appearance and tweak its performance to suit your computing habits. You can access these options by opening the new Start menu's Customize Start Menu dialog box.

For example, the General tab of the Customize Start Menu dialog box gives you the option of using

Adding the Administrative Tools submenu to the Start menu is just one more way of customizing the handy menu to suit your preferences.

small icons rather than large ones on the menu. Selecting the Small Icons radio button lets you display a smaller Start menu. It also helps you fit more programs onto the Pinned Items List.

The Advanced tab of the Customize Start Menu dialog box provides a number of other customization options. You get to decide whether new programs should be highlighted on the Start menu, for instance, and whether a Start menu's submenu should appear only after you click its associated icon or if you only need to pause the pointer over the icon.

You also can browse this tab's Start Menu Items field to disable drag-and-drop functionality on the Start menu; add your Favorites, Network Places, and Printers And Faxes folders to the Start menu; add System Administrative Tools and Network Connections as links or submenus; and turn the All Programs submenu into a scroll-down field when it gets full.

■ **Start The Commotion.** You cannot exaggerate the importance of the redesigned Start menu to WinXP. This deceptively trim menu is the first and last place you'll look to find the programs, data files, and OS features you need. We should point out, however, that there is a way to make it better. Simply spend 15 minutes personalizing the menu so that it conforms to your needs, and the time you save in the long run will be your own. [LS]

by Jeff Dodd

System Tools

What's In, What's Out & What's Improved

Windows has always come equipped with a cache of system tools to help keep your system healthy and running efficiently. Whether defragmenting your hard drive or cleaning up files Windows leaves behind, many of these tools have been available for quite some time. Windows XP brings back some of the old programs, adds a couple of new ones, and shelves several of the tools you found on Windows 98 and Windows Me.

The system tools are basically the same for both WinXP Home Edition and WinXP Professional, except that the Pro version installs the Backup utility automatically and the Home version does not.

This article explores WinXP's system tools and compares them to the system tools in Win98 and WinMe.

■ Hey, Where Are My System Tools?

Users of Win98 and WinMe will see a more limited set of system tools available after installing WinXP. Perhaps the most obvious installation omission WinXP Home Edition users will notice is the lack of a Backup utility. As with WinMe, Microsoft has not made the Backup utility available during installation or from the Windows Component Wizard. If you want to install it, you'll need to find it on your WinXP Home Edition installation CD-ROM. For more information, see "Prepare For The Worst" on page 111 in this issue.

Among the other utilities missing in action include the Maintenance Wizard (although you can still schedule tasks via the Task

Scheduler, covered later in this article), ScanDisk (replaced by Check Disk; see the "Where Is ScanDisk?" sidebar for more information), Disk Converter, Disk Compression, and several other monitoring utilities such as Resource Meter.

Microsoft has said that these utilities have been left out because WinXP is much more stable, provides access to greater resources than earlier versions of Windows, and takes care of some of these tasks in the background without the need for users to run a separate utility.

■ Activate Windows.

Nothing has generated more controversy about WinXP than the all-new Activation utility. In an effort to reduce what Microsoft calls "casual piracy," where home users use the same Windows installation CD-ROM on more than one machine or pass it along to a friend, its developers have instituted the Activation utility. Microsoft makes a clear distinction between product activation and product registration.

Product activation, according to Microsoft, is completely anonymous, whereas during product registration, you need to supply personal information such as your name, address, and phone number.

When you install WinXP, you are given the choice of activating it as part of the installation or waiting up to 30 days. If you fail to activate WinXP within the 30 days, it will stop working. Microsoft displays the Activation icon in the System Tray for the duration of the 30 days, and also displays a reminder balloon each day to let you know how many days you have left to activate the product.

You can activate WinXP by clicking this icon or by clicking Start, All Programs, Accessories, System Tools, and Activate Windows. In either case, the Activate Windows Wizard opens. With this wizard, you have two options to activate WinXP: Yes, Let's Activate Windows Over The Internet Now or Yes, I Want To Telephone A Customer Service Representative To Activate Windows.

Activate over the Internet. Select this option if your machine is connected to a modem and you have an Internet connection. Click Next. You can also register WinXP at the same time, but given that Microsoft has gone to great lengths to state that these are separate and distinct processes, it may be better to take care of them separately by clicking the No, I Don't Want To Register Now, Lets Just Activate Windows option.

On the other hand, if you would rather register WinXP now and be done with it, click the Yes, I Want To Register And Activate Windows At The Same Time option, and WinXP will prompt you for your registration data before processing the activation request.

In either case, you'll eventually get to the Select Online Activation Method screen where you need to select how you access the Internet,
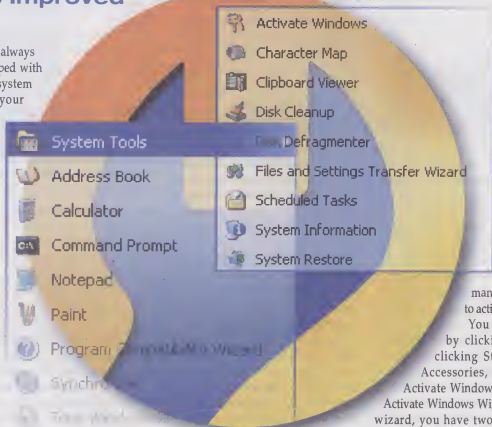
either by modem or a direct connection such as cable modem.

Click Next, and the Configure Your Network Settings screen appears where you can select proxy settings if your connection requires them. Click Next, and the Activate Windows Wizard then attempts to connect to the Internet. If it succeeds, it displays a message stating that you have successfully activated your copy of WinXP. If not, you are prompted to try telephoning (as explained in the following paragraph) or to try again later.

Call customer service to activate Windows. Select this option if you want to activate WinXP using a telephone rather than the over the Internet. In this case, you'll use a voice mail system and your touchtone phone to activate WinXP.

Click this option, and then click Next to open the Activate Windows By Phone window. Select your country from the drop-down menu, and then dial the phone number (which includes a toll-free option for U.S. customers) as directed in Step 2. Follow the telephone prompts and supply the rather lengthy number listed in Step 3 when prompted to do so by using your telephone's touchtone keypad.

After receiving your product's activation code, go back to your computer and enter the activation code in the space provided at the bottom of the window. Click Next and complete the process by following any of the remaining on-screen instructions.

■ **The Backup Utility.** As mentioned earlier, the Backup utility installs automatically with WinXP Professional, and WinXP Home users will need to find and manually install the utility from the installation CD-ROM.

To find Backup after installing it, open the Start menu and click All Programs, Accessories, System Tools, and Backup. When the Backup Wizard or Restore Wizard opens, you will notice that there have been some major changes since Win98 and WinMe (or even Win2000). First of all, you can decide whether you want to access the Advanced mode to manually enter backup or restoration details or use a wizard to back up your files. We will review each method.

The Activate Windows Wizard provides an easy way to use your modem or telephone to activate your copy of Windows XP.

Wizard mode. Click Next to begin, and then choose whether you want to back up or restore files and settings from a previous backup. Click Next. If you choose to back up your files and settings, WinXP displays the What To Back Up screen. Click whether you want to back up your documents and settings, everyone's documents and settings, all information on the computer, or choose individual files to back up.

If you click any option except the last one, the Backup utility creates the backup automatically without any further input from you. If you opt to choose which individual files the Backup utility should back up, the Items To Back Up screen appears, where you can select the files you want to back up by clicking the checkboxes next to each item.
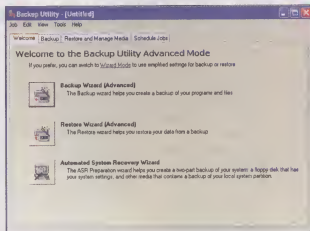
The Backup component automatically installs as part of the Windows XP Professional installation. A WinXP Home Edition user will need to search for the utility on his installation CD-ROM to manually install it.

Click a folder in the left pane and the names of files found within that folder appear in the right pane. Click the checkbox next to each file you want to select or click the parent folder in the left pane to select all files within a folder. Whether you choose a defined backup type or select the files you want to back up, when you click Next, you can choose a place to back up the files by making a selection from the drop-down menu. Give the backup session a logical name associated with the date or its contents.

Click Next and review the settings. If you want more detailed options, click the Advanced button and select options from several additional screens, which will provide additional control over the type of backup the Backup utility performs. Regardless of whether you use Advanced options, in the end, you'll need to click Finish to begin the backup process so the files are backed up to the device you selected.

Advanced mode. Click this link and the Backup utility opens. You can choose whether to run the Backup Wizard (Advanced), the Restore Wizard (Advanced), or the Automated System Recovery Wizard, the latter of which allows you to create a backup of your system files that you can use to restore your system in the event of catastrophic system failure.

You can also manually set backup parameters by clicking the Backup tab and selecting the files and folders you wish to backup. Select a backup destination and media, and then click Start Backup.

You can find the options needed to perform a manual restore by clicking the Restore And Manage Media tab. Select an entire backup or individual files, and then select a place to restore files to, a location for the restored files (as needed), and click Start Restore. Finally, you can click the Schedule Jobs tab to schedule a job for a particular day, and then click the Add Job button so the Backup Wizard opens. Here, you can enter the parameters for the given backup.

■ **Character Map.** This tool has been upgraded slightly from its predecessors. It still lets you see all the characters for each font and select special characters to insert into a

Where Is ScanDisk?

If you open your System Tools folder, you may be surprised to find the ScanDisk utility missing. This utility, available since Windows 95, lets you check your hard drive for errors and repair them automatically. Microsoft decided to replace it with Check Disk (which has been available for many years as a DOS utility). Microsoft states that Check Disk is more powerful than it was in Win9x when it was a real-mode MS-DOS utility and a separate utility is less necessary in WinXP because of the OS' (operating system's) increased stability. Regardless, Check Disk is actually a much more simplified tool than ScanDisk, not offering any of ScanDisk's Advanced options.

To access the Check Disk utility, click My Computer from the Start menu. When the My Computer window opens, right-click the drive you want to check, and select Properties. In the Disk Properties dialog box, click the Tools tab, and in the Error-checking section, click Check Now. The Check Disk utility opens. Click the Automatically fix file system errors checkbox to have the utility automatically fix file system errors for you immediately. This is the same as the Standard selection in ScanDisk. Click the Scan For And Attempt Recovery Of Bad Sectors checkbox if you want to repair drive errors. Windows checks the file system and also detects and repairs physical errors on the drive. This is the same as the Thorough selection of ScanDisk in previous versions of Windows.

If you select the latter option for the drive where WinXP is currently running, it displays a dialog box asking if you want to run the Check Disk utility the next time you restart the OS. Click OK to direct the utility to run the next time you start Windows. As with ScanDisk, if you have an illegal shutdown, Check Disk runs automatically at startup. □

document, but the WinXP version includes an upgraded interface.

Click Start, All Programs, Accessories, System Tools, and Character Map. When the Character Map opens, select a font from the drop-down menu, click a character, and click Select. Click

Copy to move the character you select to the Windows Clipboard, and then use the Paste command (or CTRL-V keyboard shortcut) in any program to paste the character there.

To reveal three advanced features, click the Advanced View checkbox and three additional boxes appear. Click the Character Set drop-down menu to confine the given font's character list to a particular alphabet such as Windows: Hebrew or Windows: Turkish. Click the Group By drop-down menu, select Unicode Subrange, and the Group By window opens adjacent to the Character Map. By clicking a name such as Currency, you can limit the display in the Character Map to just Currency characters, which can help you find the character you want more quickly. Also, you can enter search criteria in the Search For field and click Search to locate a character.

■ **Disk Cleanup.** The Disk Cleanup utility, available since Windows 95, remains unchanged. It's a good idea to run this utility regularly to remove the clutter that Windows tends to leave behind on your hard drive.

Once again, from your Start menu, find the System Tools submenu and click Disk Cleanup. When the Disk Cleanup utility opens, select a drive from the drop-down menu and click OK. Click the checkbox for each type of file you want to delete. If you are unsure if you want to delete the files for a given category, click the category to select it, click View Files, and an Explorer window opens with a list of files you will be deleting. When you are sure you want to delete the files in all chosen categories (and in most cases, it's just fine to delete these files), click OK and WinXP deletes the files. If you need to run Disk Cleanup on another drive on your system, you need to run the utility again.

You also have the option of regaining some hard drive space by clicking the More Options tab. Click the Clean Up button next to Windows Components to open its wizard, then remove utilities by clicking the checkbox next to each item. Click the Clean Up

button next to Installed Programs to access the Add/Remove Programs applet where you can select which programs you want to uninstall.

Click the Clean Up button next to System Restore and WinXP displays a prompt asking if you are sure you want to delete all but the most recent "restore point." If you are sure you want to remove these older restore points to regain the hard drive space they consume, click Yes. If you aren't sure, click No. We'll discuss this tool more in the "System Restore" section, which appears toward the end of this article.

■ **Disk Defragmenter.** Microsoft has changed Disk Defragmenter, removing some of the options and changing the interface completely. As you use your hard drive, files become fragmented, forcing the hard drive to work harder to find all of the pieces needed to access a file, which can result in slower performance. Running the Disk Defragmenter utility puts file fragments back together, helping the hard drive access files more quickly and speeding up performance.

Burrow through the Start menu, select System Tools, and click Disk Defragmenter to open its utility window. Win98 and WinMe users will notice that many of the user-defined options have been removed in the version of Disk Defragmenter bundled with WinXP, providing a far less robust utility.

Click a drive you want to defragment at the top of the window, and then click the Analyze button. When WinXP finishes analyzing your hard drive, it displays a dialog box indicating whether you need to defragment at this time. Regardless of the message, you have the choice of viewing a report that provides information based on the analysis of how much of the drive is fragmented, or you can choose to defragment now by clicking the Defragment button. If you don't want to take any action, click Close.

As in previous versions, if you choose to defragment the drive, you can still follow the progress graphically. But rather than providing a clear graphical view of your hard
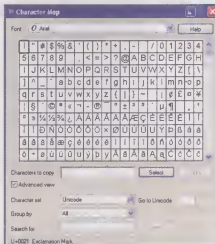
The Character Map includes tools that let you narrow the focus of the available choices to locate the special character you need.

drive, WinXP now presents a line graph, with red lines representing the percentage of fragmented files, blue lines showing contiguous files, white lines representing free space, and green lines representing unmovable files. The older version provided a much clearer overview of the hard drive.

■ **Files And Settings Transfer Wizard.** Use the File And Settings Transfer Wizard to transfer files and system settings (such as display properties, folder and Taskbar settings, as well as personal files) from one computer to another. This saves you from the time and aggravation of trying to configure the new machine in exactly the same way as the old one.

First, you'll need some way to connect the two machines, either via a network connection or a cable connection using the Direct Cable Connection feature, or you can use removable storage media. By the way, WinXP home users could use this tool to back up essential files, as you have the option of selecting which files you want to transfer and copy to removable storage media.

You'll find the Files And Settings Transfer Wizard in the System Tools submenu of the Start menu. For more information, see "It's Like Magic" in the online version of this issue at http://www.smartcomputing.com/learning/XPintro/transferwizard.

■ **Scheduled Tasks.** Select this tool from the Start menu and System Tools submenu to access the Scheduled Tasks window where you can run the Scheduled Tasks Wizard. You can still schedule tasks easily using this utility, which basically has remained unchanged from its predecessors.

Double-click Add Task in the Scheduled Tasks window and the Scheduled Tasks Wizard opens. Select a program, and then follow the on-screen prompts to schedule a task. When it prompts you for a password, you can ignore this by clicking Next if you haven't password-protected your system. If you have

password-protected the system, you must enter a password to continue.

To configure your task, click the Open Advanced Properties For This Task When I Click Finish checkbox. Then, after you click Finish, the program opens so you can configure the task to suit your preferences.
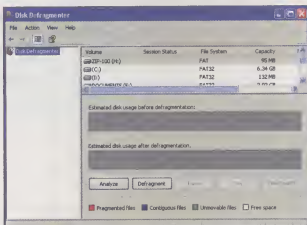
By combining all aspects of Disk Defragmenter into an integrated interface, the tool now sports a new look in Windows XP.

■ **System Information.** This utility provides a snapshot of your system setup, along with some handy diagnostic tools. You'll find System Information in the System Tools submenu. When you launch this utility, you'll see that it's divided into two panes. On the left, there's a list of different views. On the right, you'll see details about the chosen view. By default, you'll see a summary of your system, including such information as the BIOS (Basic Input/Output System) version date, your OS version, and much more.

You can see more specific information by clicking the plus sign (+) next to any category in the left pane, and then clicking a subcategory to reveal information about the chosen category in the right pane.

In addition, you can access some diagnostic tools from System Information's Tools menu, including Net Diagnostics (a network diagnostic tool), the File Signature Verification Utility (checks your system for signed and unsigned files), the DirectX Diagnostic Tool (troubleshoots DirectX

multimedia controls), and Dr. Watson (identifies software problems).

■ **System Restore.** System Restore, which first appeared with WinMe, helps anyone with Administrative rights (users with Limited status will not have access to this utility) to restore a PC to a previous state without affecting personal files, including documents or other files created after the restore date.

To do this, System Restore creates what it refers to as "restore points." These are specific dates and times you can utilize to restore a temperamental system back to its previous state (such as before you installed new software). You can even create your own designated restore point if you wish.

WinXP automatically creates a restore point each time you install a new application (as long as the application is written to support the WinXP System Restore feature), each time you use the WinXP AutoUpdate feature, or whenever you perform an update, such as installing a new driver. If the application you are installing is not configured to generate a restore point automatically (and it may be difficult to know), you can generate your own restore point manually prior to installing the application as a precautionary measure.

To access the System Restore utility, open the Start menu and find the System Tools submenu. The System Restore Wizard will then open with several options for you to choose from. See "Turn Back Time" on page 60 for more information on how to use this utility.

■ **Get The Most Out Of Your PC.** Even though WinXP is a giant leap forward for Windows, you'll still need to undertake some regular maintenance tasks. With WinXP's system tools, you have the means to keep your PC running smoothly and efficiently. ⬜

by Ron Miller

Use the *File And Settings Transfer Wizard* **to transfer files and system settings from one computer to another.**

You Have The Power

Conserve Energy With Power Management Tools

Sure, Windows XP is powerful. So were Windows 98 and Windows Me. But what sets WinXP apart from these predecessors is how efficiently the OS (operating system) manages its use of power. WinXP offers top-notch power management capabilities that let you take advantage of its many features without spiking your monthly electric bill.

■ **About Power Management.** The power management capabilities of WinXP represent the latest stage in an evolutionary process that traces back to Win98. The capabilities are based primarily on the OnNow power management initiative and the **ACPI (Advanced Configuration and Power Interface)** specification. The former is a design architecture that supports **instant-on** functionality (ability of a device to go from an off mode to an on mode without delay, such as when you turn on a radio or TV); whereas, the latter is a collection of rules and standards that lets the OS dictate how much power a particular hardware component can use at a given time.

The OnNow initiative and ACPI specification work together to create an operating environment that is energy-efficient and easy to use. For example, they make it possible for the computer to go **into Sleep mode** (any operating mode characterized by low power consumption) while you're not using it. They also make it possible for the OS to shut down hardware components after a predefined period of inactivity.

You can access all of WinXP's power management settings by opening the Control Panel and clicking the Power Options icon (found in the Performance And Maintenance category if you're using the Category View option). This opens the Power Options Properties dialog box.

■ **Scheming Conservation.** Energy efficiency in Windows begins and ends with the

power scheme. A **power scheme** is a configuration of the computer's power management behaviors. For example, it defines how much time must expire before the computer shuts off power to the hard drives and monitor. The computer then restores power to a device the next time you attempt to use that device.

The power scheme also dictates how much time must expire before the entire system goes into **Standby mode** (a Sleep mode in which active data remains in the memory and is not written to the hard drive; all data will be lost if there is an interruption in power) or **Hibernate mode** (a Sleep mode in which

active data is automatically copied to the hard drive, thereby preserving it in case of an interruption in power). The computer will spring out of Standby mode or Hibernate mode whenever it detects mouse movement, keyboard activity, an incoming fax, or some other stimulus.

WinXP comes with six preset power schemes. To choose one, open the Power Options Properties dialog box and choose the Power Schemes tab. Then, in the Power Schemes drop-down menu, select the scheme you want to use (the settings of the power schemes may differ depending on which WinXP version you installed). Click the OK button to activate the new scheme and close the dialog box.

The six power schemes are:

Home/Office Desk: This scheme is configured to turn off the monitor after 45 minutes and turn off the hard drive(s) after one hour. It will never put the system into Standby mode or Hibernate mode. The Home/Office Desk scheme is designed for productivity-oriented desktop computer users who want to conserve energy but don't want their machines falling asleep every time they walk away for a cup of coffee.

Portable/Laptop: This scheme is designed to conserve energy and preserve battery life. It turns off the monitor after 15 minutes and the hard drive(s) after 30 minutes. It puts the computer in Standby mode after 20 minutes and drops it into Hibernate mode after three hours. Mobile computer users should consider this power scheme. You also may want to consider this scheme if your PC is shared by several occasional users in a home or office. Such a scheme offers the benefit of convenience by keeping the computer turned on at all times rather than starting it up and shutting it down each time someone wants to use it. Moreover, it offers the benefit of energy efficiency by putting the computer into a Sleep mode when not in use.

Presentation: The Presentation power scheme is not really a power scheme at all. The hard drive(s) and monitor are set to never turn off, and the computer is set to never go into Standby or Hibernate mode. This scheme is aimed at salespersons,

marketing executives, teachers, and others who do a lot of presentations.

Always On: This scheme is designed to keep the computer in a state of vigilance, ready to execute a line of code at a moment's notice. That's why the hard drive(s) is set to never turn off and the computer is set to never go into Standby or Hibernate mode. The monitor is set to turn off after 20 minutes, which allows for energy conservation without affecting the PC's processing readiness. Use this scheme as an alternative to the Home/Office Desk scheme.

Minimal Power Management: Nearly identical to the Always On power scheme, the Minimal Power Management scheme sets itself apart by turning the monitor off after 15 minutes rather than 20. All other settings are the same as the Always On scheme. You can use this scheme in any situation that warrants the Always On or Home/Office Desk scheme.

Max Battery: As another scheme designed to extend the life of the battery in your portable computer, this one directs the monitor to turn off after 15 minutes of inactivity. It also directs the system to go into Standby mode after 20 minutes and into Hibernate mode after 45 minutes. The hard drive(s) are set to never turn off. This is an alternative to the Portable/Laptop scheme.

(NOTE: When WinXP goes into Standby mode, it does not have to turn off power to the hard drive[s]. Maintaining power to the hard drive[s] after the computer has gone into Standby mode makes it faster for you to resume from Standby mode. Hibernate mode, on the other hand, turns off power to all system hardware components, including the monitor and all hard drives.)

■ **Customization.** You also have the option of creating a custom power scheme. Simply select a desired setting for each of the four power scheme fields: Turn Off Monitor, Turn Off Hard Disks, System Standby, and System Hibernates. The settings range from 1 Minute to Never.

After customizing the settings, click the Save As button. This opens a Save Scheme dialog box. Enter a name for your scheme and then click the OK button. The new scheme will appear in the Power Schemes field in the Power Options Properties dialog box. Note that you do not have to create a new name for

the modified scheme. You can use one of the existing scheme names, such as Home/Office Desk or Presentations, for your customized power scheme.

A customized scheme lets you adapt the power settings to your individualized needs.
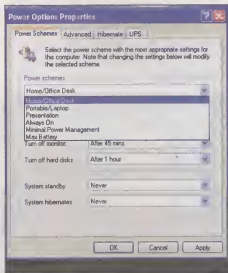
Windows XP ships with six power schemes. The Home/Office Desk scheme is the default selection for desktop computer users.
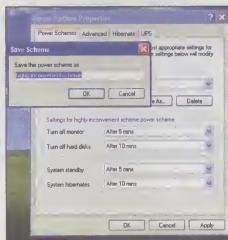
Don't get carried away when customizing a scheme. Setting the limits too tightly can impede productivity.

Before making any changes, think about how you use your PC and how a possible setting may affect your computing experience. Setting the computer to go into Hibernate mode after 10 minutes, for instance, may seem heroic conservation-wise, but it could impede productivity when you have to relaunch the OS every time you make a telephone call or go to the bathroom.

No one can tell you how to customize your power scheme as it depends entirely on your situation. Generally speaking, you can set the monitor to turn off after a relatively short period of inactivity, such as 15 minutes or as long as you would wait before turning on a screen saver.

We suggest setting the hard drive to turn off after a period of 30 minutes to one hour. Keep the System Standby setting to a minimum of one hour, unless you have good reason to do otherwise.

Put your computer in Hibernate mode only when you know you will be done using the computer for an extended period of time (at least two hours for a desktop computer; less for a notebook computer). Remember, these are general rules and should be broken if necessary.

In any case, make sure to save your data files often. Frequent saves are the only way to protect your data from unexpected power outages.

■ **The Rest Of The Options.** There's more to WinXP power management than using schemes. The Power Options Properties dialog box gives you several chances to refine the power settings.

For example, the Advanced tab of the Power Options Properties dialog box lets you indicate whether you want to place an icon on the Taskbar that points to the dialog box and whether you want to be prompted for a password after resuming from Standby mode (a minor security measure).

You also can specify how the computer's power button should respond if someone presses it while the computer is running. The default selection is to shut down the computer.

The Hibernate tab of the Power Options Properties dialog box lets you disengage the hibernation function, and the UPS tab lets you review information about your uninterruptible power supply (if your PC is connected to one). The UPS tab might be inactive if you do not have a UPS (uninterruptible power supply).

By using the options and schemes available to you in WinXP and customizing them to suit your needs, you can lower your electric bill and prolong the life of your computer batteries, while still maintaining a high level of productivity. How's that for power? [LS]

by Jeff Dodd

Take Advantage Of User Accounts

Maintain Individual Settings & Promote Peace Among Multiple Users Sharing A Computer

When your family shares one computer, there are bound to be disagreements. Each time one person alters the settings, it only serves to aggravate the next person that comes along (especially if it's Mom and she had it set just to her liking). Windows XP enters into this cauldron of conflict to save your family and provide a separate logon identity for each family member. This means the children and adults can live in harmony (at least where the computer is concerned) without having to worry that adjusting settings might negatively affect other family members.

You can set up the PC so Mom and Dad are administrators, which gives them the ability to add and remove programs, perform various system tasks, and assign limited accounts to the kids. Setting up limited accounts will still give the kids the right to establish personal settings, but it prevents them from disturbing crucial system settings.

Regardless of account type, each account holder has his own Outlook Express account information (so everyone's e-mail isn't mixed together). Plus, each user can establish personal program settings (such as showing or hiding the Office Assistant in Word) and access a personal My Documents folder. To share files with all account holders, place them in the Shared Documents folder.

WinXP even lets you password-protect your account. For instance, you may wish to keep the children away from those administrative activities, or your teenager might want to keep your prying eyes out of her personal e-mail. What's more, you can quickly switch accounts without shutting down what you are doing, allowing multiple users to share a PC without dramatically affecting the way each person works.

If you're using WinXP Professional, you can use the User Account option (as long as you are
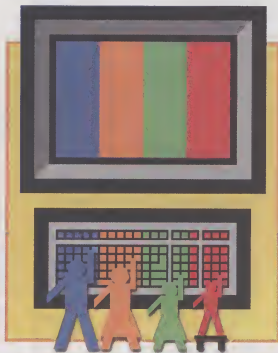
connected to a workgroup and not directly to a domain) to allow multiple users to share a single PC in an office setting. This could be useful in situations such as job sharing (where two people share a PC but are in the office at different times). In this situation, each user logs on using a password, and therefore, has access to private e-mail, a unique My Documents folder, and personal Desktop and system settings, all without disturbing the other user's settings or data.

■ **Get Started With User Accounts.** When you first install WinXP, you are assigned the role of administrator by default. After you complete the installation, you can add other user accounts to your PC. Begin by opening the Start menu and clicking Control Panel. If you are an experienced Windows user, you may want to switch to the more familiar view. To do so, click the Switch To Classic View link in the left pane. Double-click User Accounts, and from the Pick A Task list, click Create A New Account.

Type a name for the new account in the field provided. Click Next and pick an account type by clicking the appropriate radio button. If you let the user be an administrator, he or she can create, change, and delete accounts; make system-wide changes, such as using the Control Panel applets and installing new drivers; and install programs and access all files. Select Limited to prevent the user from accessing administrative functions. Anyone with a limited account can change his own password, change the theme and Desktop settings, access his own files, and view files in shared document folders. Click Create Account and WinXP creates an account for the new user.

■ **Log On To An Account.** After you set up the accounts, users can access accounts during startup or during a Windows session using the Fast User Switching feature. In addition, you can log off altogether to close your current user account session or shut down the computer using the new Hibernate feature to save your current user account session (along with those of other users whose sessions are currently active).

Startup. When you first start Windows, Windows displays the logon screen that lists each user's account name. Simply click the account you want. If the account is password-protected, WinXP will prompt you to enter a password.

Fast User Switching. This feature allows you to stop what you are doing to let someone else log on to a different account without disturbing your open programs. For example, let's assume you are working on a spreadsheet for the family budget and your daughter wants to use the PC to check her e-mail. She can switch to her account easily, while still leaving your spreadsheet open.

To use Fast User Switching, click Start and Log Off to open the Log Off Windows dialog box. Click the Switch User button, and the logon screen appears again with a list of usernames. Click the name of the person you want to log on as. If the account is password-protected, WinXP requires you to enter a password before gaining access. When the new user finishes her task (which in this case is your daughter checking her e-mail), the original user can then switch back to his account to see his Desktop and all programs that were running when he left.

Keep in mind, however, that you should always save your data before using the Fast User Switching feature. If Windows locks up after Fast User Switching and you fail to save

your data, you could lose unsaved data. Also remember that you need enough memory to keep multiple Windows sessions open at the same time. Windows recommends a minimum of 64MB, but you'll likely need at least 128MB or more to take advantage of Fast User Switching.

Log Off. If you want to end a session and shut down all open programs, click Log Off from the Start menu; when the Log Off Windows window displays, click Log Off instead of Switch User. Windows closes your account and returns you to the logon screen where you can select another account.

Hibernate. If you want to save all of the data from open accounts without disturbing everyone's work and yet shut down the computer at the same time, WinXP includes a new feature called Hibernate.

Click Start, Turn Off Computer, and Hibernate. If you don't see the Hibernate button in Turn Off Computer window, place your mouse pointer over the Stand By button and press the SHIFT key. With this action, the Stand By button becomes a Hibernate button. If this doesn't work, double-click Power Options in the Control Panel, choose the Hibernate tab, select the Enable Hibernation checkbox, and click OK. Now your Stand By button should become a Hibernate button whenever you hover your pointer over it and press SHIFT.

When using Hibernate, WinXP saves the currently open settings on all open accounts and shuts down. The next time you start your PC, Windows opens with the most recently opened account. If you switch to a different account that had open programs before you decided to Hibernate, you'll see that WinXP also saved its settings. If you shut down using the traditional Windows Shut Down selection while some accounts still have open programs, Windows displays a warning message prompt to make sure you want to shut down. If you aren't sure, click No, and then click Hibernate to save all current account settings. For more information, see "You Have The Power" on page 36 in this issue.

■ **To Edit Accounts.** After you create the account, WinXP automatically associates a picture with it and displays it as a thumbnail graphic next to the account name on the logon screen. The administrator or the account user can change this picture and edit a number of other account options. Regardless of your account type, access the User Accounts applet in

the Control Panel. Administrators should click the Change An Account link in the Pick A Task list. Limited users can edit some of their own account information by clicking an option.

You can edit any of the following choices. Information that only the administrator can change is noted.

Change the name. Changing a username applies only to users logged in as administrators. Click this link to return to the Name screen where you can edit the name assigned to this user's account.

Create passwords. Click the Create A Password link to add password protection to an account. Begin by typing a password. Press the TAB key on your keyboard or click inside the next field and type the password again to confirm that you typed it correctly. Finally, type a hint to help you remember the password just in case you forget it.

If you are an administrator, you can prevent a forgotten password by creating what WinXP refers to as a "password reset disk." This floppy diskette lets anyone who uses it create a new

The User Accounts Control Panel applet lets the administrator set up accounts for each user on the PC.

password. Click the Administrator account name, then click the Prevent A Forgotten Password link in the Related Tasks list in the left pane, and follow the steps in the Forgotten Password Wizard to create the diskette.

Pick a new username graphic. If you're not happy with your default picture, or if you're just in the mood to change your picture, click the Change My Picture link and pick a new graphic from the choices that appear on-screen. Or click Browse to see more available pictures stored on your system and choose any graphic you wish.

When you locate the graphic you want, click it, and then click the Change Picture button. WinXP reduces the picture to a thumbnail size,

so make sure any miscellaneous graphic you choose will reduce to that size with enough clarity so that you can see it.

Choose a new type of account. The Change The Account Type link applies only to users logged in as administrators. As administrator, you have the ability to change any account type from Administrator to Limited, and vice versa. Click this link, and then click the appropriate radio button. Click the Change Account Type button to save your change.

Use .NET Passport services. Microsoft lets each account user click the Set Up My Account To Use A .NET Passport link to access a wizard to sign up for a .NET Passport account, which provides access to Passport-enabled sites and the MSN Messenger Service.

Click the Set Up My Account To Use A .NET Passport link, and .NET Passport Wizard opens. Read the Privacy Statement and click Next to begin the sign-in process. Microsoft then collects information about you and directs you to enter your e-mail address and a password. For more information, see Microsoft's .NET My Services page (http://www.microsoft.com/my services/passport).
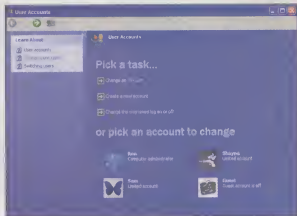
■ **Change The Way Users Log On & Off.** By default, when you start WinXP, the logon screen opens so you can select a user account. You also have the option of using the Fast User Switching feature. A user with administrative privileges can turn off these features by clicking the Change The Way Users Log On Or Off link in the Pick A Task list.

If you are a home user with limited system memory, you may want to disable these features. If you're a work user, you may want to shut these features off for security reasons.

To shut either feature off, click the checkbox next to its option to deselect it, and then click Apply Options. If you change your mind later, you can always return to this screen and turn these options back on.

■ **Peace At Last.** WinXP is a great leap forward for the Windows family of operating systems, and one of its most valuable features is its ability to accommodate accounts for multiple users. Now you can share the same computer in harmony, while still preserving each user's own personal settings and promoting PC peace in your household or office. 【**LS**】

by Ron Miller

Administrative Management Tools

Keep Your System Running In High Gear

Lost among all the hoopla surrounding Windows XP's glamorous new features are several stalwart programs that help make your computer function in a reliable, efficient manner. Although Microsoft understandably wants to highlight the newest features in WinXP, understanding how to use these administrative tools is an important part of keeping your computer in tip-top shape. Think of them as a do-it-yourself tune-up for your PC.

Three key components of WinXP are Storage Management, the Device Manager, and Services. These three subsystems of WinXP are easy to administer and can give you insight into just how your computer operates. We'll explain how they'll help you and show you how to put them to use.

Microsoft has centralized most of the computer management programs in the MMC (Microsoft Management Console). This is a framework that allows small programs called "snap-ins" to perform administrative functions. By keeping a consistent interface, the MMC minimizes the learning curve required to keep your computer operating smoothly. While there are other ways to perform the tasks we'll discuss, we'll perform our examples exclusively through the MMC.

Navigating to the MMC is straightforward. From the Start menu, click Control Panel, Performance And Maintenance, Administrative Tools, and finally Computer Management. Once the MMC window opens, you'll be presented with an expandable directory with sections for System Tools, Storage, and Services And Applications.

■ Increase System Speed & Storage.

Managing your storage systems properly can have a dramatic effect on how fast your computer operates, as well as maximize your storage space. The component we'll focus on is the Disk Defragmenter.

When your PC stores a file on your hard drive, it examines the file to determine how much space it requires. With this information, your PC tries to find a space on your hard drive that can store the file in its entirety. If your PC can't fit the file in one contiguous location, it will fragment the file and make a note about the fragments for when it needs to retrieve the file.

As your hard drive fills up, the number of fragments increases. This creates a performance bottleneck when you open a fragmented file because the hard drive has to retrieve the file from multiple locations. Defragmenting your hard drive attempts to solve this problem by rearranging your files into contiguous areas. A good rule of thumb is to defrag your hard drive once a week, as well as any time you add or remove software.

To defrag your drive, select Disk Defragmenter from the Storage component of the MMC. The right pane of the MMC displays all

the hard drives in your system, as well as the properties of each hard drive. At the bottom of this pane, you have two buttons labeled Analyze and Defragment. Clicking Analyze will survey your drive for fragments and tell you whether you need to defrag the drive. This analysis only takes a few moments and creates an analysis report, as well as visually displaying the current fragmentation level of your drive.

The analysis tool isn't perfect, often stating that your drive doesn't need to be defragmented when it could use it. By further examining the analysis report, you can compare the visual analysis with a more detailed report. One thing to remember is that defragmenting your drive does no harm.

Before you decide to defrag your drive, be sure to close any programs other than the MMC. This will speed up the defragmentation process, which can be lengthy on the gargantuan hard drives sold nowadays. Also, Disk Defragmenter needs to have a 15% cushion of free disk space to use as a temporary holding place while rearranging your files.

After you've analyzed your drive, clicking Defragment starts the process. Although there is a nice animated display while the defrag process runs, you'll want to avoid using your computer, as this will slow down the process. When Disk Defragmenter finishes, the visual display will show an approximation of the drive's fragmentation.

Unfortunately, there isn't any convenient way to automate Disk Defragmenter. Make a mental note to run it at a consistent, convenient time, and you'll be maximizing the speed at which your hard drive operates.

■ Devices, Drivers & Staying Up To Date.

The next MMC snap-in that performs tirelessly for you is the Device Manager. Tasked with keeping your computer's physical components well behaved, the Device Manager also provides a wealth of information about your system. Located under the System Tools, Device Manager lets you access the properties of your hardware, conveniently assists you in updating software drivers for the devices, and lets you disable devices that are causing conflicts with other hardware.

Unless you built your computer from hand-picked components, you may not know the

details of each component. To view the properties of a device, expand the device category by clicking the plus sign (+). This will reveal the model of the device. Right-clicking the device and selecting Properties will open a property sheet with details about your particular device.

Although each device has a slightly different Properties dialog box, the most important elements available are the Device Status, the Device Usage, and the Driver Management tab.

Device Status. Hopefully, all your devices will continue working properly. However, there may be occasions when a device doesn't have the proper software driver or a device setting conflicts with another device. If this is the case, clicking the Troubleshoot button may help you resolve the problem.

Device Usage. If the Help And Support Center invoked by the Troubleshoot button was unable to solve your device's problem, you may have to disable it. This is as easy as choosing Do Not Use This Device (Disable) from the Device Usage menu. Conversely, if you've successfully repaired a device, you can enable it from the same menu by choosing the Use This Device (Enable) option.

Driver Management. Drivers are software components that tell WinXP how to use your hardware devices. Manufacturers frequently update drivers as they become more familiar with a new OS (operating system), so it is often worthwhile to check the Web site of any problematic hardware to see if a new driver is available.

If you find a new driver, WinXP helps make the process of safely installing it easy. Right-click the troublesome device, select Properties, and from the Properties dialog box, select the Driver tab and click Update Driver. This will launch the Hardware Update Wizard, which presents two options: Install The Software Automatically or Install From A List Or Specific Location. The first option searches for new drivers and installs them immediately. If you have already downloaded the driver to your computer, choose the latter and specify the location. The wizard will then install the updated driver.

Unfortunately, new drivers can often cause problems of their own. When this occurs, WinXP's Device Driver Rollback can be a lifesaver. By allowing you to revert to your original driver, WinXP makes driver management more forgiving than it was with previous

versions of Windows. To roll back to the older driver, simply click the Roll Back Driver button in the Properties dialog box and select the original functioning driver.

■ **Services & Applications.** Services are rarely given the recognition they deserve, but without them, computing would be extremely difficult. At a simple level, WinXP is really just a collection of services or small programs that provide many of the features we experience while using our computer.

Although these services usually hide in the background, tirelessly performing their duties, sometimes they falter or fail completely. Through the Services And Applications snap-in,
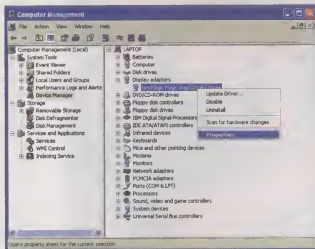
Updating drivers for your hardware is easy via the Device Manager.

you can manage these services, configuring them to enhance your system's stability, as well as troubleshooting them in the event of failure.

Selecting Services, a subcategory of the Services And Applications snap-in, reveals the plethora of programs performing numerous behind-the-scenes roles. Selecting a specific service displays a description on the left that helps explain the service in a nutshell. Also displayed is the status of the service, which is either Started or "blank" if the service stopped. The Startup Type column can be Manual, Automatic, or Disabled. And finally, the Log On As column tells you under which account the service runs.

■ **Service Recovery.** Sometimes services fail. Perhaps a program crashed or you accidentally disabled a service other services are dependent upon. Before Win2000 and WinXP came along, you had to manually restart the service. Now you have the option of configuring the computer's response to a service

failure. The Recovery setting lets you set four actions for a failed service.

1. **Take No Action:** Until you reboot your computer, this service is dead.
2. **Restart The Service:** WinXP will try to manually restart the service, just as if you had attempted to from within the MMC.
3. **Run A Program:** Because many services are interdependent, you may want to run a program or batch file to restart an application.
4. **Restart The Computer:** When all else fails, rebooting may be the only way to restart a recalcitrant service.

One of the best features about Service Recovery is it lets you apply these actions in an ordered fashion. For example, with the first failure, Service Recovery could attempt to restart the service. If this is unsuccessful, it could then run a program or batch file to remove impediments to the service. And finally, for its last attempt, it could reboot the computer. This ability to fine-tune your services may mean the difference between having to reboot or gracefully restarting the service.

To modify these settings, select the service you want to configure from the Services pane of the MMC. Right-click and select Properties. Below the Recovery tab, there are three drop-down menus with the four options we just discussed. Choose the desired actions and click OK. Be careful about modifying services that are currently functioning properly because you might inadvertently stop or alter a service that your system is depending on. Also, if you do make any modifications, be sure to note your actions in case you need to revert to the original settings.

■ **Master Of My Computer.** Although "Master Of My Computer" isn't the literal definition of the MMC, it isn't too far off. In addition to the three tools we've discussed, many more are included. Microsoft has wisely decided to standardize the essential system management tools into the MMC, in addition to providing alternatives for less experienced users. This blend of power tools makes WinXP a sound choice for users who just want their computers to work, as well as the gurus who like to lift the hood and see what's underneath. **LS**

by Chris Jackson

Enable Multiple Monitors

Stretch Your Desktop & Viewing Area To Its Limit

Is your Desktop cluttered with windows three-deep? Do you switch back and forth between windows so often you get dizzy? If you have Windows XP, a spare monitor, and a second supported video adapter, you can enable multiple monitors and double your Desktop size. Or, if you have a special dual-head video adapter, you can enable DualView to use one adapter for more than one monitor. Actually, if you have the resources, you can attach as many as 10 monitors to a single computer.

This article explains the advantages of using more than one monitor in WinXP, lists compatible video adapters, and tells how to install and configure multiple monitors.

■ **Why More Than One?** Many people require more than one monitor for their jobs. Video editors use one screen to view a movie they cut and paste together on another.

Financial traders watch commodity prices change on one screen while requesting trades on a second screen. Desktop publishers use more than one monitor to format and edit several pages of print at one time. CAD (computer-aided design) engineers require extra screen space to create everything from bicycles to rocket engines. Digital content creators, computer game designers, medical imaging technicians, and news writers all use multiple monitors.

You may have your own unique reason to use multiple monitors. Maybe you need to see all 35 columns in an Excel spreadsheet at once. Maybe you want to compare several Web pages side by side. You could write code on one monitor and use the other to chat on IRC (Internet Relay Chat). You could even watch a DVD movie on one screen while typing a term paper on the other. And once you have more than one monitor, you'll find even more reasons to extend your Desktop.

On the other hand, having more than one monitor won't solve all your problems. Playing a game such as Quake III Arena on one monitor while reading your e-mail with Outlook on another doesn't work very well. To use Outlook, you'll need to switch away from your game, causing it to pause or minimize. You also need to be careful with games that change a screen's resolution because the game might push the content of a secondary monitor off the screen.

■ **Compatible Adapters.** Not all video cards work with WinXP's Multiple Monitor feature. What's more, some adapters that allow multiple monitors in Windows 98 or Windows 2000 don't work in WinXP. ISA (Industry Standard Architecture) video cards don't work, but many PCI (Peripheral Component Interconnect) and AGP (Accelerated Graphics Port) cards do.

To see a list of the PCI or AGP desktop computer display adapters that work with WinXP's Multiple Monitor feature, visit the Microsoft Product Support Services Web page designated for this topic (http://support.microsoft.com/default.aspx?scid=kb;EN-US;q307397).

Although WinXP has better support for dual-head video adapters than Win2000, only a few specialized adapters support DualView. Dual-head adapters are designed for graphics professionals and are more expensive than regular video adapters. To see a list of PCI or AGP desktop computer display adapters that allow DualView in WinXP, visit the Microsoft Product Support Services Web page mentioned in the previous paragraph.

Many notebook computers come with built-in display adapters that mirror what's displayed on the notebook computer's LCD (liquid-crystal display). Some PCMCIA video adapters for notebooks may also offer features for multiple monitors. Check your documentation to find out more about your adapter's features. For a list of notebook computer display adapters that work with DualView, again, visit the Microsoft Product Support Services Web page mentioned previously.

■ **Install The Adapters.** Using multiple monitors is more common than DualView, so we'll explain how to set up multiple monitors. If both of your video adapters are compatible, installation is easy. You just need to install your adapters inside your computer case following the instructions of your adapter and

computer vendor, and discharging any static electricity by touching something metal before installing anything inside your computer case), connect the monitors to different ports on back of the computer case (corresponding with the appropriate display adapters), and restart your system. The next time you log in, WinXP will detect the adapters and install the correct drivers for them.

Most motherboards sold today have one AGP slot and several PCI slots, so you won't be able to use two AGP video adapters. If you have two PCI adapters and only one is supported, but you can't get both to work, you might enable them both by swapping the PCI slots where the adapters plug in.

If only one of your adapters is compatible, and one is AGP while the other is PCI, you still may be able to enable multiple monitors. You need to tell your computer's BIOS (Basic Input/Output System) to recognize the unsupported card first; when your computer boots, WinXP will recognize the supported card and allow dual monitors.

To change BIOS settings, boot your computer and immediately press the BIOS configuration key or key combination (usually DELETE, ESC, CTRL-ESC, CTRL-ALT-ESC, F10, or F2) for your system as shown in your manual or on your PC's startup screen. BIOS settings vary from computer to computer. Look for a category called Integrated Peripherals, and then look for the setting Init Display First or Initialize First.

Next, choose whichever slot contains your *unsupported* adapter card, either PCI or AGP. (If your BIOS doesn't have such a setting, a BIOS update available from your computer manufacturer might add this option.) Save your changes and exit the BIOS screen. With a little luck, WinXP will recognize that you have multiple video adapters when your PC reboots. This BIOS trick doesn't enable all unsupported adapters, but it's worth a try.

■ **Adjusting Display Properties.** When you boot into WinXP, only one monitor displays the logon screen. Before you get both screens to work, you need to tell WinXP to use both adapters.

Log on, right-click your Desktop, select Properties, and click the Settings tab. The Settings tab contains several useful controls. The top shows a gray background with numbered icons representing the monitors connected to each of your video adapters (via the back of your computer case). The icons are

numbered in the order your BIOS recognizes each adapter. When you add another adapter, its icon appears grayed out.

To enable the adapter, select the icon, click the checkbox next to Extend My Windows Desktop Onto This Monitor at the bottom of the dialog box, and click Apply. The second monitor should turn on. Now, drag the icons in the dialog box so they match the physical arrangement of your monitors. That way, your pointer will follow appropriately when you move your mouse from the left to the right (or top to bottom) monitor. If you're not sure which monitor is which, right-click a monitor icon in the dialog box and select Identify from the pop-up menu to see the corresponding number on-screen.

To adjust your displays, click the monitor icon or select a monitor from the Display drop-down menu and adjust the screen resolution
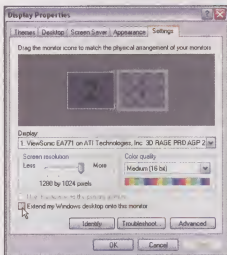
To enable another monitor, go to the Display Properties dialog box, select the monitor, click the checkbox next to Extend My Windows Desktop Onto This Monitor, and click Apply.

and color quality in the menus below. Click Apply to save your changes.

It's important to correctly select your primary monitor. The primary monitor is the one in which programs first appear when you start them. Most DVD players only work on the primary monitor. If your graphics card includes a TV tuner, the tuner functionality won't work unless it's using the primary monitor. Furthermore, the primary monitor is the only one that enables accelerated 3-D graphics. The primary monitor doesn't need to be the first monitor your BIOS recognizes (the icon numbered 1). Generally, you should choose

your most powerful video adapter to power your primary monitor.

In addition, please note that most games only run on the primary monitor, but Microsoft Flight Simulator and Combat Flight Simulator can use several monitors at once. A few games, such as Star Trek Armada II, can display on two monitors using a dual-head Matrox adapter.

■ **Fine-Tuning Details.** Once you have multiple monitors working with your computer system, the next step is to fine-tune your setup. To avoid eye fatigue, adjust the brightness and contrast on your monitors to appear the same by using the controls on each monitor. If your display driver allows, control the brightness and contrast from within WinXP by using monitor calibration features. Open the Display Properties dialog box, choose Settings, click Advanced, and select Color Management. (See the documentation for your monitor and display adapter for details.)

You also can calibrate your monitors using special software such as the PowerStrip program from EnTech Taiwan ($29.95; http://www.entechtaiwan.com/ps.htm).

Many screen savers share monitors. However, screen savers that weren't designed for multiple monitors only display on the primary monitor, leaving the other monitor blank. All the screen savers included in WinXP support multiple monitors.

The Taskbar can't reach across more than one monitor, but you can put the Windows Taskbar on one screen and the Office XP Taskbar on another. Moving the Taskbar between monitors is easy. Right-click the Taskbar, and make sure that the Lock The Taskbar option is unchecked. Then, drag the Taskbar to the display you want and attach it to any side of the screen. When the Taskbar is where you want it, right-click it and select Lock The Taskbar so it stays put when you use it.

■ **Stretch Out.** Once your Desktop stretches out onto two or more monitors, it's hard to go back to one cramped monitor. For more information about multiple monitors, check out the Multi-Monitor Resources page at Realtime Soft (http://www.realtimesoft.com/multimon). There, you can read video adapter reviews, peruse how-to articles, glance over multimonitor FAQs, step through a troubleshooter, and post questions to an online forum. [LS]

by Andrew Kuster

A Sight For Sore Eyes

ClearType Uses Font Display Method That's Easy On The Eyes
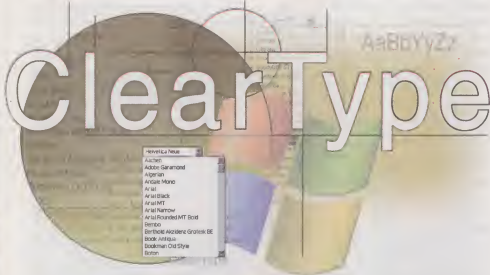
L et's face it: Sitting at a computer all day can be tough on your body. There's the possibility of repetitive stress injury caused by continuous use of the keyboard and mouse. An uncomfortable desk chair can lead to back problems. And staring at a computer screen for hours can be really hard on the eyes.

But there's good news: Windows XP may be able to do something to help alleviate the eyestrain problem. The new OS (operating system) has a feature designed to relieve the amount of stress on your eyes and create a more comfortable computing experience.

ClearType is a **font-rendering technology**, which means that it affects how type is displayed—and perceived—by a computer monitor. It improves font readability by modifying letters on-screen so they appear smooth, not jagged, making the effort of reading text on a computer screen much easier on the eyes.

And because ClearType is built into WinXP, anyone with the new OS can use it; however, it's important to note that users of LCDs (liquid-crystal displays) will see the most noticeable difference.

■ **From TrueType To ClearType.** OK, it's time for a little bit of a history lesson. Apple Computer is the breeding ground for a great deal of computer research, and it was there that TrueType fonts were developed. TrueType is a **scalable format**, which means

that a font's design is preserved even when the display has a low resolution or when the type is taken down to a small scale. (In case you were wondering, a **font** is simply a set of text characters that has a distinct look.)

Microsoft licensed the TrueType technology from Apple and introduced it into its Windows 3.1 OS. Then, as Microsoft introduced each version of Windows, it included additional enhancements for TrueType. The TrueType font technology has two components. One is the fonts themselves. And two is the TrueType **rasterizer**, a piece of software built into System 7.x on the Apple Macintosh range of computers, and also into Microsoft's Windows OSes.

You may not remember what it was like before TrueType came along, so we'll refresh your memory: The characters in non-TrueType fonts often appeared jagged on the computer screen. Now, thanks to the continuous improvements to TrueType, there are hundreds of fonts created in the TrueType format, and Microsoft expects that TrueType fonts will continue to exist for some time to come as a "de facto" font standard.

Now, with WinXP, along comes ClearType to take font readability to the next level. ClearType isn't exactly new, as Microsoft and other companies have been developing this sort of technology for several years. Back in April 1999, Microsoft issued a release on ClearType guidelines in order to encourage hardware

manufacturers to develop products that would be able to take advantage of it. About a year later, ClearType was on the market when Microsoft launched the new PocketPC OS, which included the Microsoft Reader, an e-book application that used ClearType to make text more readable on a computer screen.

But it wasn't until Microsoft included ClearType in an OS for the PC—namely, WinXP—that it had the potential of widespread use. And when you combine a widely used OS with the increased use of flat-panel monitors and their LCD screens, you can see why ClearType is being touted as revolutionary.

The reason lies in the underlying technology. Monitors are composed of **pixels**, the little tiny dots that derive their name from the phrase "picture element." A computer monitor displays hundreds of thousands of pixels. Your computer sends information to the screen, telling it to turn a pixel "on" (so it appears as a tiny square) or "off," thereby creating the image that you see.

In reality, however, an LCD pixel isn't the tiniest possible element because each pixel can be broken down into **subpixels**. Three subelements—red, green, and blue—are what make up a pixel. The red subpixel is on the left, the green subpixel is in the middle, and the blue subpixel is on the right. It stands to reason, then, that if you can manipulate the subpixels, you'll get a sharper picture than if you only manipulate down to the pixel level.

And that's essentially what ClearType does. It manipulates the subpixels, through the use of filters, to create the sharpest possible image. To understand how this works, first consider that for the best possible display, you want an image that can include any possible color at infinite resolution. The closest you can get to this, in real terms, is to have the subpixel display an intensity of a single color. ClearType finds the best subpixel value by taking the input image and maneuvering it so that the output image is the optimum value. The details about this process are quite technical, and for further information, we recommend that you read Microsoft's Technical Overview of ClearType Filtering at http://research.microsoft.com/~jplatt/cleartype.

In simple terms, the technology works by aligning subpixels so that they best line up with the other subpixels. Before ClearType, designers relied on **anti-aliasing**, which was a technique of "rubbing out" parts of a pixel by using shades of gray to help smooth out the edges of a pixel. But in small type sizes, this served only to blur an image and make it harder to see.

ClearType, on the other hand, takes into account the arrangement of the subpixels, and because of this, Microsoft calls it a "display specific anti-aliasing technique."

Now, what does all this mean to the human eye? Well, because of the way humans view images, the eye detects only a single element when looking at a pixel; you need a microscope to actually see the subpixels. Yes, the human visual system can see errors in an image, but we're much better at picking up on spatially larger errors than in fine detail. We're also more sensitive to black-and-white brightness errors than we are to color. So, even though we may not be able to detect each subpixel, we can detect jagged lines in text, especially black on white. ClearType, then, makes black-on-white text appear smoother. Plus, it works on any color font and any color background.

There isn't much publicized empirical evidence that shows the long-term effects of ClearType use, but if you aren't convinced by what your eyes see in the accompanying sidebar and graphics, we'd like to direct your attention to a study conducted at Clemson University and released in April 2001. Researchers studied 18 users who read for an hour on three different displays. Those who read from LCD monitors preferred text that was rendered in ClearType. The researchers also discovered that mental fatigue ratings were lower and readability judgments were higher in those groups.

Now, keep in mind that ClearType technology is designed for LCD monitors. Microsoft claims that readability on a CRT (cathode-ray tube) monitor also will improve somewhat when the ClearType technology is applied. If you have a CRT monitor, however, it's possible you won't see much of a change with ClearType. But we'd like to note for the record that when ClearType was activated on a six-year-old NEC MultiSync XV17 monitor, it immediately made a stunning difference.

■ **Turn On ClearType.** OK, now that you've heard all about what ClearType can do, it's time to see it for yourself. WinXP comes with ClearType built in, but it isn't activated by default. So, we'll walk you through a couple of the procedures needed to enable the technology on your system.

The first way to activate ClearType is to right-click anywhere on the Desktop and select Properties. When the Display Properties dialog box appears on-screen, choose the Appearance tab, and click the Effects button. Do you see the

second option, the one that states: Use The Following Method To Smooth The Edges Of Fonts? From the drop-down menu, select ClearType. Make sure a check mark is in the checkbox next to this command, and click OK. Then, back in the Display Properties dialog box, click Apply and OK. This should immediately activate ClearType.

Another method (and one that may be a bit more fun) is to use the Microsoft Web site to activate WinXP's ClearType and adjust its settings. To do this, visit the ClearType Information Web page (http://www.microsoft.com/typography /cleartype); in the paragraph on the upper-right side of the page, click the ClearType Web Interface link to access a step-by-step guide to help you with this process.

Toward the bottom of the Web page that appears on-screen, you'll see a checkbox next to Turn On ClearType. Once you place a check mark in that checkbox, click Step 2: Tune ClearType Settings. The resulting Web page presents you with six different renderings of a paragraph of text. Select the paragraph that looks the best to you by clicking it. Scroll to the bottom of the page, click Apply, and the process of choosing the optimal ClearType settings for your system is complete.

One neat feature of the process we just mentioned is that it shows you samples of different fonts and how they appear in ClearType. For instance, did you know that Verdana is one of Microsoft's core fonts for the Web and it is commonly used in e-mail? Or, did you know that Arial is one of the original core fonts of Windows and is often the font of choice in business documents? You'll also learn about Comic Sans MS, Times New Roman, Palatino Linotype, and more.

Now that you've configured ClearType for your monitor, you can sit back and enjoy the easier text readability. Hmmm . . . if only you could do something about those other work-related hazards that crop up after spending too much time at your desk working on the computer. Well, we'll leave that advice up to another article. To find an article about ergonomics at the *Smart Computing* Web site (http://www.smartcomputing .com), use the Search tool at the bottom of the home page. LS

by Heidi V. Anderson

On-Screen Comparison

These graphics illustrate the difference between the ClearType font-rendering technology and standard text rendering.

Figure 1 demonstrates the difference between simple pixel rendering (top) and how "borrowing" subpixels from nearby pixels creates a sharper line.

Figure 2 shows how the "borrowing" takes place.

Figure 3 compares two magnified letters on an LCD (liquid-crystal display). The first letter uses standard technology; the second letter uses ClearType.

Figure 1

Figure 2

Figure 4 presents two blocks of text, one with standard TrueType rendering and the other with ClearType rendering. Here, you can see the difference ClearType makes.
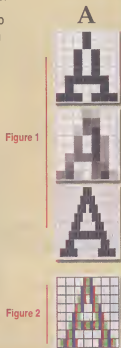
Figure 3

Standard Whole-Pixel Rendering TrueType rendering:

Here we stand, on the brink of a significant step forward in Personal Computing Evolution: Old and mature display technology is merging with modern LCD display panels to deliver breathtaking new clarity and elegance to the written word. Indeed . . . this changes the world! (again?)

Spectacular Sub-Pixel Rendered Text:

Here we stand, on the brink of a significant step forward in Personal Computing Evolution: Old and mature display technology is merging with modern LCD display panels to deliver breathtaking new clarity and elegance to the written word. Indeed . . . this changes the world! (again?)

Graphics courtesy of Gibson Research Corporation
http://grc.com/cleartype.htm

Windows Media Player

Adding DVD & MP3 Features To Its Lineup

In the old days, entertainment systems were composed of individual modules. Listening to the radio required a radio, watching a video involved a TV and VCR, playing a video entailed a CD player, and recording music meant using a cassette deck. Obviously, keeping track of all these components made amusing oneself a bit of a hassle, so a revolution occurred in which the capabilities of all of these electronics were replaced by their software counterparts running on one convenient platform: the PC. But even the PC, the new bearer of convenience, was ultimately flawed. Despite a convincing guise of total cohesion, this newfangled entertainment system still consisted of entirely different modules, but now in software rather than hardware.

Windows Media Player for Windows XP, sometimes referred to as MPXP, brings that revolution to a climax by making all of your various entertainment options run in a single piece of software. Although no available streaming video and audio player actually executes flawlessly, Media Player 7.1, the version released prior to WinXP's version, was hailed by many as the best alternative available.

MPXP is still in fierce competition with RealPlayer for a majority of the market share, but Microsoft may have gained the upper hand with its latest version, which stands on the shoulders of its giant predecessor in an attempt to make the user experience ideal.

MPXP gives you all the functions of earlier versions—including streaming audio, video, and radio—as well as some extremely handy and groundbreaking new features. In this article, we'll touch on some of MPXP's most important improvements, including:

- a sleek new facade with a few new buttons
- a display area for song lyrics
- better and more obvious integration with media file storage on your hard drive
- support for ripping (copying) CDs in the MP3 format
- an expanded list of portable devices available for exporting media files
- DVD playback

■ **New Buttons To Play With.** The newest Media Player looks similar to its previous version, but aesthetes will be pleased with its rounded, more ergonomic edges and the new "chrome" bar running across the top of the screen, which houses numerous buttons for hiding windows or performing simple tasks.

If you are running WinXP, you'll be pleased to note that MPXP's color scheme will match whatever Desktop theme you choose. MPXP comes standard with more skins than were available with previous versions, and you can always find the most recent ones in the Skin Chooser by clicking the More Skins button on the bar along the top of the screen.

Note also that a few buttons on the Taskbar along the left side of the player have been switched out, albeit in a self-explanatory manner: the older Copy To Portable Device button is now Copy To CD Or Device and the CD Audio button is now Copy From CD.

■ **Karaoke Made Easy.** The Equalizer And Settings area is a handy display area with a variety of different controls from which you can choose. (You can choose to hide this area or display it with a button on the chrome bar or from the View menu.)

Previous players let you toggle between SRS WOW Effects (an audio effect), Graphic Equalizer, Video Settings, Media Information, and Captions; with MPXP, there is a Lyrics option, as well. The Lyrics setting displays a text file along with a specific song in case you and your friends want to sing along.

Unfortunately, MPXP can't perform the miracle of actually digging up the lyrics for you; you have to find them yourself. Once you have them, attach them to a file by right-clicking a track, selecting Properties, and pasting them in the space provided on the Lyrics tab.

■ **A Convenient File System.** The fact that MPXP is designed to integrate seamlessly with WinXP as a whole is obvious in the way it deftly handles your media files. The My Music folder comes standard with WinXP (along with the traditional My Documents and more recent My Pictures folders) and makes CD copying more convenient—if you are willing to accept Microsoft's default file hierarchy.

When copying files from a CD, MPXP takes note of the artist and album name; it automatically files each song inside an appropriate album folder, which is inside an appropriate artist folder. For example, insert the Led Zeppelin IV audio CD (or a worthy substitute), click Copy Music, and then choose Track 4, "Stairway to Heaven." Go grab some Fritos

from the kitchen and by the time you return, you'll be delighted to find that when you open your My Music folder, you'll find a brand-new Led Zeppelin folder, inside of which is a Led Zeppelin IV folder, inside of which is your new copy of "Stairway to Heaven."

The folders even match the cover art of the album from which you are copying (assuming MPXP was able to find this information). This feature keeps the My Music folder organized and clutter-free, although it may not be quite what you had in mind if you aren't planning on transferring entire CDs onto your hard drive. You can, of course, copy files to wherever you want by opening the Tools menu, clicking Options, and changing the destination folder from the Copy Music tab (by clicking the Change button and entering your preferences).

In addition to this particular CD-copying convenience, media files are easier to deal with in general in MPXP. First of all, you can burn files to a CD-RW (CD-rewriteable) directly from within the My Music folder by selecting the track you want and clicking the appropriate option under the File And Folder Tasks heading in the left pane.

More importantly, a new feature called Intelligent Media Management gives you unrestricted freedom to organize your files from within your WinXP file system however you see fit by making the organization of audio and video tracks within MPXP independent of the file system where the information actually resides. Many players lose track of files when they're moved among folders and can't reconstruct playlists later on; MPXP will keep an eye on your files no matter where you try to hide them. As a result, you can carelessly obliterate all of the nice Artist/Album/Song folder hierarchy the player creates when it copies your CDs without fear of reprisal.

■ **MP3 Lovers Find Relief.** The ability to copy tracks from a CD to your hard drive was available in previous versions of the player, but for the first time, Microsoft made the process MP3-friendly.

By default, MPXP copies CDs in the WMA (Windows Media Audio) format, which offers better compression (smaller file sizes) at comparable or better quality than the MP3 format. In the past, this was your only option, but MPXP finally lets you rip in MP3 format if you want to. You might want to do this to copy files to a portable device that doesn't read the WMA

format, for example. (MPXP can, of course, playback files in the MP3 format, as well as a wide variety of other audio and video formats.)

Unfortunately, you'll have to pay for your MP3 capability. To find out more, open the Tools menu, click Options, choose Copy Music, and click the MP3 Information button to visit a Microsoft Web site listing MP3 Creation Add-on Packs from several vendors for about $9.95.

■ **Also Targets Portable Devices.** In recognition of the booming market for more sophisticated portable devices, MPXP makes it easy for you to get your files from your hard drive to your briefcase or back pocket. The player works with most popular types of PDAs and portable music devices with no modifications; simply hook up the device and click Copy To CD Or Device. MPXP is the first player to also let you do this with video files (for the few portable

Windows Media Player for Windows XP automatically creates album folders when you copy tracks from your audio CDs.

devices that can handle them, such as Microsoft's Pocket PC device, among others).

You can also adjust the bit rate at which you transfer files to external devices. Because you probably have a lot more storage room on your hard drive than your MP3 player, you may want to sacrifice some quality in order to fit more songs on your player. From the Tools menu, click Options, choose the Devices tab, and set a different bit rate (you can even set a different bit rate for transfers to different portable devices if you have more than one).

■ **DVDs At Last.** MPXP is the first version of Media Player to support DVD playback, a welcome addition to its repertoire. Combining ease-of-use with all the features of any good commercial player, MPXP should probably be the last thought you ever have about a DVD player for your PC. Simply insert a DVD into

your DVD drive and the movie should start playing in the standard-size viewing window.

In the Playlist column to the right, you'll see a list of chapters. Click one and it expands to allow you access to any title, giving you effortless navigation between scenes and eliminating the need to stop playing and rummage through the scene selection from the main menu of the DVD itself. (Of course, if you don't know offhand what your favorite scene's Chapter/Title number is, you may have to do a little searching.)

If you see an error message when trying to play a DVD, you may have a problem with your DVD decoder, or you may not have one at all. If this is the case, your best bet is to cough up $14.95 and purchase one of the Microsoft-recommended DVD Decoder Packs available at one of its Windows Media Technologies Web pages (http://www .microsoft.com/windows/windowsmedia /windowsxp/buypacks.asp).

Getting to and using full-screen mode is easier with MPXP than any other player. Simply click the little round button in the bottom right corner of the viewing window to expand into full-screen mode (but you still have to choose between the widescreen/cinema and standard views through a menu on the DVD itself). Once you're in full-screen mode, any movement of the mouse will call up the navigation controls on the bottom and top of the screen (right-clicking is not necessary); these controls politely fade away within a few seconds after you quit using them to keep from distracting you.

In the Equalizer And Settings area, you can look up Media Information for DVDs, which displays director and actor credits and more details about the movie itself. You also can play DVDs with the fast-forward, rewind, and slow-motion options under DVD Controls.

■ **Give It A Chance.** Odds are good that the latest incarnation of Media Player can make your life a little easier, particularly if you are a DVD fan. If you have an earlier version, the upgrade is free (and you don't need to be running WinXP). Even if you're a RealPlayer fanatic, it's worth your time to do some comparison shopping. Of course, the bottom line is that you should use whatever software you believe delivers the smoothest video and cleanest sound, with a minimum amount of hassle. After all, what more could you ask for? [LS]

by Ryan Turner

The Glossary

Another Resource To Turn To For Help

Sooner or later, anybody who uses a computer encounters incomprehensible computer jargon. What's DHCP, PPP, or a VPN? It seems as if programmers come up with a new protocol, standard, or acronym every day. So what can a poor, confused user do to decipher the alphabet soup?

Fortunately, the Glossary in Windows XP's Help And Support Center can lend a helping hand. The powerful search functionality of the Help And Support Center swiftly finds answers to your questions; by using its Glossary, you should easily be able to find explanations for unfamiliar terms and phrases.

The Glossary is a giant collection of definitions for jargon that you might encounter as you use WinXP (or they can just relate to general computing jargon). It doesn't include instructions on how to fix problems or add functionality, but you'll find that type of content in other parts of the Help And Support Center. Rather, the focus of the Glossary is to provide helpful, succinct definitions. So if you come across an acronym or abbreviation for a computer-related term, you'll find it fully explained in the Glossary.

The Glossary is an integrated part of the Search function in WinXP's Help And Support Center. The Search tool itself lets you find a vast number of overviews, articles, and tutorials both in your local PC's Help files and online at Microsoft's Knowledge Base. And now, when you want to find a definition in the Glossary, you can also turn to the Search tool.

Open your WinXP Start menu, select Help And Support, and look for the Search field below the top menu bar. To find a term or phrase in the Glossary, type it in the field and click the green arrow to begin searching (or press ENTER on your keyboard). When your search is complete, the bottom of the Help And Support Center divides into two panes. The left pane contains links to helpful pages about your search term.

The Help And Support Center actually searches for your term in three places. The results found in each place display in the left pane. The top tab, Suggested Topics, lists overviews, articles, and tutorials related to your term. The second tab, Full-Text Search Matches, includes actual Help files and pages that match the full text of your search criteria. Finally, if you're connected to the Internet, the bottom tab, Microsoft Knowledge Base, shows matches from its site.

When you click one of the links in the left pane, the right pane of the window displays the corresponding content. Click the icons at the top of the right pane to add a link from the results to your Favorites, shrink the window, print the results, or locate where the results are within the Search tool's contents so you can find related topics.

■ **How Does The Glossary Fit In?** If the term you searched for is in the Glossary, the left pane's Suggested Topics tab has a link (often at the bottom of the list) labeled simply as: Glossary. Sometimes the term you searched for occurs in several places within the Glossary; in that case, you'll see several Glossary links. Click the first Glossary link to display the definition of the term in the right pane.

For example, to find the definition for PPP in the Glossary, type **PPP** in the Search field and click the green arrow. From the left pane, click the Suggested Topics tab, scroll to the bottom of the list until you see the Glossary link, click it, and you'll see the definition for Point-to-Point Protocol (PPP) appear in the right pane.

Now that the Glossary appears in the right pane, it's easy to just skim through the Glossary directly. The top of the pane lists every letter of the alphabet. Jump to a term in the Glossary, or simply click the appropriate letter for the term you want to find. Then, scroll up or down to find the definition you want to read. Some definitions in the Glossary have links to related terms in the Glossary. Click any of these links to jump to a corresponding definition.

■ **Get A Clue.** The WinXP Help And Support Center makes using the Glossary a simple process. And thanks to the ease of use of these components (along with the Knowledge Base) and the way in which they work together, the Help And Support Center is the best place to
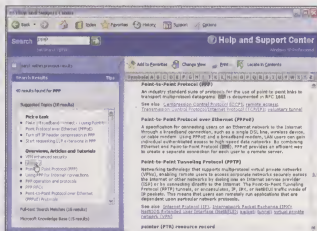
Windows XP's Help And Support Center lets you quickly search for a term and find its definition in the Glossary.

look when you need to understand new terms and concepts you might encounter as you use your new OS (operating system) or other computing applications and devices. **LS**

by Andrew Kuster

Windows Messenger

A Buddy System
With More Features & Pizzazz

G eorge Jetson would feel right at home using a video phone, but he probably wouldn't expect it to be an integral part of his computer's OS (operating system). George, meet Windows XP's Messenger.

Real-time communication using instant messaging has been a hit since America Online first introduced its AIM (AOL Instant Messenger) client, and it remains one of the reasons people go online. E-mail is great, but it doesn't come close to opening a communication window and transmitting instant messages across cyberspace. Friends and families can share the latest and greatest news, while co-workers collaborate on joint projects.

However, communicating with text-only messages isn't as much fun as seeing and

hearing the person on the other end of the wire. That's one of the reasons Microsoft built a brand-new messaging system into WinXP. Called Windows Messenger, it's a hipper version than MSN's or AOL's messaging software, and the closest thing many users will see to Jetson's video phone—well, for now at least.

■ **Windows Messenger Overview.** Using Messenger, you can communicate in real-time, over an Internet connection, by sending text, voice, or video messages—or a combination of all three. You can also use Messenger to transfer any type of files or images.

Messenger lets you keep track of which of your friends or co-workers are online, lets you initiate a conversation, or block an unwanted

contact. You can also collaborate on a project using an application-sharing feature. This means you and other people can work on an application, such as a word processing document, at the same time.

One of the coolest additions to Windows Messenger is its partnership with one of WinXP's newest features, Remote Assistance. If you're having computer problems, Remote Assistance can help by enabling another user to take remote control of your system and make any necessary fixes. Messenger is a part of this process due to its chat utility, file transfer ability, and most of all, because Microsoft recommends it as the best way to contact a remote user for assistance. So long, house calls.

Microsoft directs WinXP users to consider Windows Messenger as a way to send invitations for Remote Assistance because it works in real-time, which lets you directly see whether your "expert" buddy is currently online. To find out more, see the "Get Help From Afar" section on the last page of this article.

■ **What You'll Need.** To use Windows Messenger, you—and anyone with whom you want to communicate—will need to sign up with Microsoft's .NET Passport (a link is provided when you launch Windows Messenger). It's free to join, and if you have a Hotmail or MSN account, you're already a member. Microsoft uses Passport on several of its systems, including MSN Calendar, MSN Messenger and MSN Wallet. If you have a "passport" for any of them, you have a passport for Messenger.

The type of messaging you and your contacts can use is limited only by the equipment you have. If you don't have a Web cam connected to your system, for example, you can't send live video (but you can receive it). Of course, both you and your contact can send text messages, regardless of hardware.

■ **Let's Get Started.** The first thing you need to do is get Windows Messenger up and running, and if necessary, sign up for a .NET Passport account. Launch Windows Messenger by double-clicking the Messenger icon located in the bottom right corner of your screen in the System Tray. It's near the clock and looks like two tiny people. If the icon isn't there, click Start, All Programs, and Windows Messenger.

The first time you launch Messenger, a blank window will open with a "Click here to

sign in" message. After clicking the message, Windows Messenger walks you through the setup process using the .NET Passport Wizard. First, it will ask you for your e-mail address and password. If you already have an MSN or Hotmail account, just enter that information. If not, click Get A .NET Passport.

After you complete the .NET Passport signup procedure, Messenger will open a new window and display your list of contacts and the online status of each. If you have multiple passports (for example, you may have several Hotmail e-mail addresses), choose the one you want to use from a drop-down menu.

■ **Add Contacts.** Before you can communicate with anyone using Windows Messenger, she needs to be on your contact list. If this is your first time using Messenger, click the Add icon. At this point, Messenger asks if you want to add a contact by using her e-mail address or Passport username, or if you need to search for either of these items.

If you choose Search, enter the person's name and the system will search your computer's Address Book and the Hotmail Member Directory. A message will pop up on-screen to let you know Messenger added the person to your contact list. Messenger also sends a message to the person you just added, notifying her that she has been added to your contact list.

If you try to add a contact who does not have a Passport account, Messenger will offer to send that person an e-mail explaining how to get one. You can add a personal invitation to the e-mail, and if you wish, change the canned message from English to another language.

When you add a contact, another message appears on-screen to ask if you want that person to see when you are online, and whether she can contact you. After you indicate your preference, Messenger adds the person to your contact list and you're ready to start communicating.

■ **Send Text Messages.** To send an instant message, launch Messenger again, and then sign in by clicking the link and filling in the fields that appear on-screen. After you sign in, double-click the name of the

person you want to contact and a Conversation window will open.

At the bottom of the window, type your message. When you finish, press ENTER or click Send. As a result, a pop-up box will appear in the lower right corner of your friend's screen and an audio alert will sound. As soon as your friend clicks the pop-up box, the Conversation window opens and your online chat begins.

Want to bring another person into the conversation? No problem. Once your instant
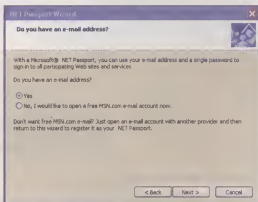
To use Windows Messenger, you'll need to sign up for a free .NET Passport account.
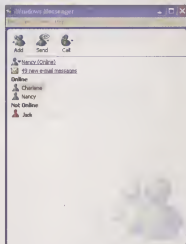
The online status of your friends will always display in the main Windows Messenger window.

messaging session has started, as many as five people (including you) can participate. Just click the Invite icon located at the bottom of the Conversation window. Then, click Join This Conversation, and type the e-mail address of the person you want to invite.

As messages are exchanged, a running log is kept of the conversation. If you want to save the log—a great idea for business conference meetings—open the File menu (in the Conversation window) and click Save As.

■ **Add Voice & Video Messages.** To add voice to your instant messages, make sure you and your online buddy are both using WinXP and have a sound card, microphone, and

speakers (or a headset). For videoconferencing capabilities, you'll also need a Web camera and (preferably) a fast Internet connection.

Before using audio or video, you'll first need to make sure all your hardware is working properly. To do this, launch Messenger, sign in, click Tools, and then select Audio And Video Tuning Wizard. Follow the instructions so the wizard can verify that your speakers, microphone, and Web camera are all working correctly.

When the setup is complete, double-click the name of the person you want to contact and the Conversation window opens. To have an audio session, click Start Talking. Windows Messenger will notify your buddy about your request to have a voice conversation with her, and she can then accept or decline your request.

Once your buddy accepts your request, you can start talking through your microphone or headset. When you finish, click Stop Talking (located on the right side of the Conversation window).

To begin a videoconferencing session, double-click the name of the person you want to contact; once the Conversation window opens, click Start Camera. After your buddy accepts the invitation for a video session, her picture will appear in your Conversation window and your picture will appear in her window. To stop sending video, click Options, and then click Stop.

If the person you are calling doesn't have a Web cam, you can still communicate via Messenger and conduct a video session where she sees you but you can't see her. If you invite someone to a videoconference and you don't have a Web cam, the scenario we just mentioned will reverse and you will see her but she won't be able to see you.

■ **Send Photos & Files.** While chatting via Messenger, you also have the option of sending files or photos back and forth. Once a conversation starts and the Conversation window opens, click Send A File (located on the right side of the window). Choose a file to send and click Open.

When your friend accepts the file, you'll receive a notification that it was accepted and the file transfer will begin. If someone is sending you a file, you'll receive a notification that some files may contain harmful viruses and you'll be given the opportunity to accept or decline the file.

Once you receive the file, you can view it by clicking the link that indicates where the file was stored on your system. You'll also get a message that you may want to scan the file with a virus-scanning program.

■ Protect Your Privacy. Although you probably love instant messaging, there are times when you won't want anyone on your contact list to know you're online. You may be busy, under stress because of a deadline, or just not in a chatty mood. These are the times to make sure you know how to change your online status.

In Windows Messenger, you can block anyone or everyone from seeing when you are online. You can also change your online status to meet specific needs. For example, you may want your friends or co-workers to know that you are online, but are too busy to talk. Or, you can set your status to show you're at lunch, away from your desk, or on the phone. You can even set your status to indicate that you're offline, even when you aren't.

To change your online status setting, click File, My Status, and pick an option from the list (such as Out To Lunch). When you change your status back to Online, or when you sign in again, a pop-up box will let anyone on your contact list know you are available for instant messaging.

Another option is to have your status shown as Away if you are inactive for a specified number of minutes (the default setting is five). To change this setting, click Tools, Options, and the Preferences tab. On the next screen, you can enable or disable the Away option, or change the number of minutes that must pass before Away displays as your online status. You can use the same Options dialog box to control your privacy settings. Click the Privacy tab to define which contacts can see your online status or send you messages.

■ Application Sharing. Want help on your resume? Or, need assistance in setting up a spreadsheet? It's possible, using Windows Messenger's application-sharing function, a nifty feature that lets people work together simultaneously on the same application.

First of all, launch the application that you want to share, and then launch Windows Messenger, sign in, and double-click your buddy's name. Next, click Invite (the icon is located on the bottom of the Conversation Window) and To Start Application Sharing.

An invitation then transmits to your buddy, asking him to accept or decline. If he's not using WinXP, you'll receive a message saying that your buddy doesn't have application sharing installed; your buddy will receive a message telling him he needs to upgrade to WinXP.

If you both are running WinXP, and your buddy accepts your invitation, the Sharing Session toolbar will open and the Sharing Programs dialog box displays. This dialog box lists the applications running on your system. Click the application you want to share and click the Share button.

Next, click Allow Control. If you want your buddy to access your application at any time during the session, click the checkbox next to Automatically Accept Requests For Control. If you deselect this checkbox, your buddy will have to ask you for permission each time he wants control. Once you allow control, however, your buddy can work on your application just as though it was installed on his computer. Any time you want to end his reign of control, just press the ESC key on your keyboard.

■ Get Help From Afar. As we mentioned earlier, the Remote Assistance feature allows a "trusted expert" (and the person you choose is up to you) to assist remotely with computer problems. Or, if you're a computer ace and everyone phones you for help, you can use Remote Assistance to perform hands-on troubleshooting on other systems, with the other users' permission, of course.

Someone cannot control your computer through Remote Assistance unless you invite him to do so via e-mail or Windows Messenger. To use Remote Assistance, both computer users need to be using WinXP.

You can ask for assistance in two different ways. One is to launch Messenger, click Ask For Remote Assistance from the Tools menu, and click the name of the person you want to assist you. The second option comes into play if you are already having an instant messaging session with someone. Then, all you have to do is click the Invite button, select To Start Remote Assistance, and choose the buddy's name.

Once your buddy accepts the invitation, a message box appears to ask you to confirm your permission. Click Yes. At any point, you can end the Remote Assistance session by pressing the ESC key or clicking the Stop Control button.

For more information about this new feature, see "Remote Assistance" on page 57 in this issue.

■ Messenger's Menus. Messenger gives you several options regarding privacy, personal information, and general preferences. To access these options, click Options from the Tools menu. Choose the Personal tab and modify the options found there to change the name others see when you're signed into Windows Messenger. The default setting is your Passport name, however, you may want to change your name for privacy or security reasons.

Your instant messages display inside the Conversation window. Click the Invite icon to ask other friends to join the fun.

If your Passport is linked to a Hotmail account, you'll automatically receive notices when a new e-mail appears in your inbox. If you're afraid other people may see your messages, select the checkbox that requires a password when checking e-mail.

You can also use the Personal tab options to change your instant messaging font and designate whether you want emoticons to display in your messages.

Click Preferences to choose general settings, such as which folder to use to store incoming files, and whether to play a sound whenever a contact signs in or sends you a message.

The Privacy tab controls online status settings (see the "Protect Your Privacy" section of this article); however, if you worry about who your kids can talk to online, be aware of the fact that there are no parental controls in Windows Messenger.

■ What Are You Waiting For? If you've been on the fence about whether to upgrade to WinXP, the enhanced Windows Messenger application may be the deciding factor. It's fun, it makes getting help a breeze, and most of all, it's the way of the future. LS

by Nancy Hendrickson

Learn The Basics With Movie Maker

But For Advanced Needs, Use A More Sophisticated Video Editor

Recognizing a growing enthusiasm for digital video technology, Microsoft bundled video-editing capabilities into its release of Windows Me in 2000. One year later, these same capabilities are alive and well in the Home Edition of Windows XP. Movie Maker, as the OS' (operating system's) built-in video editor is called, provides the basic tools you need for converting raw video clips into finished footage.

■ **Making Movies.** For the most part, video editing consists of three steps: collecting the video and breaking it down into usable clips; organizing the clips and then augmenting them with audio and other multimedia data; and saving the finished footage in a popular format so others can view it. Windows Movie Maker, when coupled with the multimedia capabilities of WinXP, helps you complete all of these steps.

We will walk you through Movie Maker's various features and explain how they help you create home movies.

Capture video. Quality home movies begin and end with a recorded video in good condition. An analog video recorder is the most common mechanism used for recording video, but you also can use a digital video recorder, a Web camera, or even a VCR. Once you have the video footage (and have it in abundance; a good rule of thumb is to take two to four times more footage than you need), it's time to capture (bring the video content into a PC and, if necessary, convert it to a format the computer can handle) the video for Windows Movie Maker.

Movie Maker gives you two ways to do this. One, you can connect a digital video recorder or Web camera to your PC and capture the action as it happens. Or two, you can connect a digital video recorder, analog video recorder, or VCR to the PC and capture prerecorded video content from a videotape or digital storage medium. Either way, Movie Maker's capture functionality is handled by the Record command, which is found in the File menu.

Selecting this command opens the Record dialog box. Make sure you connect the active video source to your computer, turn it on, and set it to play or record. When the video source is ready, a video image will appear in the upper-right corner of the Record dialog box. Review the configuration settings, particularly those in the Setting drop-down menu because they determine the size of the video file and playback quality of the finished project, and then click the Record button to capture the data. Click the Stop button when the capture is complete.

Although we could not test Movie Maker's capturing capabilities in all situations, we have to report that we noticed mixed results under our test scenarios. We first attempted to capture video from an analog VCR connected to our video capture card, the ATI All-In-Wonder RADEON ($199.99; 877/757-1001, 905/882-2600; http://www.ati.com). The process worked, but the resulting digital files were of significantly lower quality than the original film footage. Specifically, the digital recordings were out-of-focus and occasional skips and stutters punctuated the video stream. As a result, we chose to record our video clips using the capture software that came with the video card.

Our second attempt to capture video from within Movie Maker was not as disappointing. We used a Logitech QuickCam Web camera ($79.95; 800/231-7717, 510/795-8500; http://www.logitech.com) to record live video directly to Movie Maker. This time, Movie Maker captured the video and audio just fine, and we ended up with usable footage for our home movie.

Import video. Movie Maker touts an Import command, found in the File menu, that lets you import existing digital video clips into your editing project. The command also lets you import other forms of multimedia content, such as graphics and audio files. Activating the Import command launches the Select The File To Import dialog box. In this box, open the Look In drop-down menu and peruse the contents of your computer system until you find the desired multimedia file. Highlight the selected file and click the Open button to import it into Windows Movie Maker. You can import all sorts of video files, including those in the .AVI, .MPG, and .WMV formats. Movie Maker also lets you import audio files in the .AIF, .WAV, and .WMA formats, as well as graphics files in the .BMP, .GIF, and .JPG formats.

All files imported into Movie Maker, along with those that you are able to capture using the Record command, are compiled in the program's My Collections folder. You build your edited videos using only the multimedia content contained within this folder.

(NOTE: Files imported into the My Collections folder stay in their original location on your computer system. If you delete the files or move them from their original location, Movie Maker will not have access to them even though you may still see a link to them in the My Collections folder.)

Arrange your clips. The video files that you capture or import into Movie Maker are automatically divided into clips (segments of a video file). The program starts a new clip

whenever it detects a radical change in the video footage, such as a sudden transition from the dimness of interior lamp light to the glare of outdoor sunlight. The creation of clips does not affect the integrity of the video files themselves, but merely divides a lengthy file into manageable sections that you can edit easily.

Clips are the basic building blocks for constructing an edited movie. You'll find them in the My Collections folder, stored inside subfolders that represent the individual video files. Peruse the contents of these subfolders to locate the clips you want to use in your movie. If you want to review the contents of a particular clip, highlight it and click Movie Maker's Play button. Once you find a clip you like, drag it down to the storyboard at the bottom of the Movie Maker window. You then can move the clips around the storyboard to arrange them in the desired order.

Movie Maker gives you the option of arranging your clips on a timeline instead of a storyboard. Timelines work a lot like storyboards except that timelines measure the chronological length of each clip. For this reason, timelines prove especially helpful once you begin editing the clips. To activate a timeline, open the View menu and select the Timeline command. You can revert back to a storyboard by opening the View menu and selecting the Storyboard command. Both storyboards and timelines help you determine the best approach to telling your story.

Before you go any further, make sure you save your project. Open the File menu and click the Save Project command. In the Save In field of the resulting dialog box, specify the location where you want to save the project. Type a name for the project in the File Name field and click the Save button.

Trim the clips. It is unlikely that Movie Maker will create clips of the ideal length and content. For the best movies, you should trim each clip so that it contains only relevant footage. Movie Maker makes it easy to trim extraneous footage from the beginning and end of each clip.

You can do this by opening the timeline view and selecting the clip you want to trim. The selected clip will turn blue, and a pair of

gray triangles will appear at the clip's beginning and ending points. These triangles are called trim handles.

To trim footage from the beginning of the clip, position the on-screen pointer over the left trim handle and press down on the left mouse button. Holding the mouse button down, move the trim handle to the right. As you do so, the viewing window will display the corresponding footage. Release the left mouse button when the trim handle is positioned where the clip's new starting point should be. All of the footage to the left of the trim handle will disappear.

Use the same procedures to trim footage from the end of the clip. This time, use the right trim handle and move it to the left. As you trim footage, Movie Maker will realign all clips within the timeline. Repeat the trim procedure for each clip that goes into your movie. Note that trimming a clip does not alter the contents of the source video file in any way.

■ **Bring In The Extras.** If the arrangement and trimming of clips is like baking a cake, the process of adding audio, voice-over narration,

The My Collections folder holds all of the multimedia content you plan to incorporate into your home movie. Audio and graphics files appear as individual items within the folder; video files appear as subfolders.

still images, and cross-fade transitions is like putting on the frosting. These are the decorations that make your movie look like more than just a random mix of video clips.

Audio files. In order to add a specific audio file to your movie, the audio file must be stored within the My Collections folder. Use the Import command to bring the audio file into the folder if you have not done so already. Once you take care of that, drag the audio file from the My Collections folder to the appropriate

location on the timeline's audio track (the audio track is located directly beneath the video track and is denoted by a small speaker icon).

Note that you may have to adjust the audio sound level to hear the audio track properly. To do so, open the Edit menu and select Audio Levels. In the resulting dialog box, slide the volume control to the right until it reaches the desired volume.

Voice-over narration. Use voice-over narration to insert elucidating commentary over an otherwise confusing video segment. To add the voice-over narration, open the timeline view and select the Record Narration command found within Movie Maker's File menu. In the Record Narration Track dialog box, verify that the audio recording device is correctly specified next to the Device heading, and then click the Record button to begin your narration.

After speaking your piece, click the Stop button and save your recording. The recording, which will appear as an audio file in the My Collections folder, is now ready to be positioned anywhere on the audio track.

For the best recording quality, make sure the timeline's audio track is empty when you record the voice-over narration. Later you can insert audio files around the voice-over narration.

Transitions. Windows Movie Maker supports the use of cross-fade transitions for a seamless shift from one clip to another. All you have to do is open the timeline and drag one of the involved clips over a portion of the clip that immediately precedes it. The area where the two clips overlap is the transition. During this segment of the video, the first clip will fade out while the second clip fades in. You can create transitions wherever any pair of clips come together.

Still images. You can add another dimension to your movie through the addition of digital photos, title slides (graphics created in Microsoft Paint or some other drawing program), and other images. Just drag the image file from the My Collections folder to the timeline or storyboard, and then position it wherever you like.

Images are set by default to appear in your movie for five seconds each. You can change this by opening the View menu, selecting Options, and then adjusting the Default Imported Photo Duration (Seconds) setting in the resulting dialog box.

Movie Maker lets you add voice-over narration to your videos. Select the Mute Video Soundtrack option if you want to eliminate the clip's original soundtrack.

■ Publish The Finished Productions.
Once the movie is complete, Windows Movie Maker gives you a few options for publishing it. You can save the movie as a file on your PC, send the movie as an e-mail file attachment, or post it on a Web site. All of the options are accessible through the File menu's Save Menu and Send Movie To commands.

Regardless of which option you choose, you first must navigate a dialog box asking you to specify a playback quality. The dialog box then shows you a corresponding file size and the download times for the quality selected. Choose a low-quality setting if you plan to post the movie on the Web or send it by e-mail to recipients who have dial-up modems; a medium-quality setting if you plan to post it online or e-mail it to recipients who have high-speed Internet access; and a high-quality setting if you only plan to watch the videos on your computer. This dialog box also gives you the option of providing some descriptive information about the file.

After clicking the OK button, a subsequent dialog box will ask you to provide a name for the file and, in the cases when you choose to save the movie to your hard drive, specify a location for it. Follow the on-screen promptings to complete the process.

You must have an e-mail application installed and active on your PC to transmit the movie as an e-mail file attachment. Similarly, you must have an account with a video hosting service, such as POPcast (http://www.popcast.com), VideoShare (http://www.videoshare.com), or YesVideo (http://www.yesvideo.com), if you want to publish your files on the Web. All of your finished Movie Maker productions are viewable through Windows Media Player.

■ Good, But Not The Best. Windows Movie Maker is easy to use, provides basic video-editing tools, and comes free with WinXP. What is there not to like about it?

Plenty. The program works fine for elementary video-editing tasks, but it has nothing to offer in terms of advanced functionality. It doesn't let you insert captions, for instance, or

customize scene transitions. It doesn't allow for multiple audio tracks or support the inclusion of video effects. Moreover, the quality of a finished Movie Maker project, in terms of resolution and clarity, can't match the quality of a movie created with a third-party video editor such as Adobe Premiere ($549; 888/724-4508, 408/536-6000; http://www.adobe.com) or Ulead VideoStudio DVD ($129.95; 800/858-5323, 310/896-6396; http://www.ulead.com). Consequently, any user who dreams of

creating professional-looking videos using only a stack of VHS tapes and Windows Movie Maker will be gravely disappointed.

So go ahead and use Movie Maker if you're just starting to dabble in the art of video editing. Use it if you're looking for an easy way to e-mail short video clips to Grandma or your cousin in Toledo. Use it if you're looking for something fun to do with the kids on a Saturday afternoon. But start shopping for its replacement because you're sure to need one soon. ⬛ LS

by Jeff Dodd

Movie Maker vs. Other Video Editors

Windows Movie Maker is an entry-level video-editing product. That is, it offers basic functionality without any of the bells and whistles that you need to perform advanced editing maneuvers. For extended editing functionality, you must get a third-party video-editing program, such as Adobe Premiere ($549; 888/724-4508, 408/536-6000; http://www.adobe.com), Ulead VideoStudio DVD ($129.95; 800/858-5323, 310/896-6396; http://www.ulead.com), or MAGIX video deLuxe ($49.99; 888/326-2449, 310/477-0241; http://www.magix.com).

Note that although third-party programs offer many of the same features, they differ widely in terms of what those features let you do. Both MAGIX video deLuxe and Adobe Premiere support video effects, for instance, but only Premiere lets you adjust the impact of those effects on particular frames within the video.

	Windows Movie Maker	MAGIX video deLuxe	Ulead Video Studio DVD	Adobe Premiere
Price	free w/ WinXP	$49.99	$129.95	$549
Bundled content	no	yes	yes	yes
Audio tracks	1	16	2	99
Video tracks	1	16	1 + title track	99
Audio recording	yes	yes	yes	yes
Video recording	yes	yes	yes	yes
Audio effects	no	yes	yes	yes
Audio mixer	no	yes	no	yes
Video effects	no	yes	yes	yes
Text effects	no	yes	yes	yes
Transitions	yes	yes	yes	yes
Transition effects	no	yes	yes	yes
Undo	no	yes	yes	yes
CD authoring	no	yes	yes	yes
DVD authoring	no	no	yes	no
Send as e-mail	yes	yes	yes	no
VHS authoring	no	yes	yes	yes
Web publishing	yes	yes	yes	yes
Size of users manual	no manual	128 pages	72 pages	378 pages

Automatic Updates

Make Sure Your System Is Current

Imagine the look on your face when you overhear a co-worker explaining how crackers found a security gap two months ago in a software program you use. Sure, the program's developer plugged the hole via a downloadable patch a few days later, but you never heard about the problem, and your computer has been a sitting duck ever since. This scary situation can and does happen, and the last piece of software you want to see compromised is your OS (operating system). Thankfully, Microsoft has included a tool in Windows XP that helps us keep up to date with critical system updates.

Automatic Update, included in WinXP Home Edition and Professional, builds on the Automatic Update feature introduced with Windows Me (and that feature was based on the earlier Critical Update Notification tool). Automatic Update connects with the Windows Update Web site, checks for critical updates, and automates the download and installation of these updates.

Updating your system via an automatic process such as this can be convenient and sometimes a lifesaver. This is particularly true in the case of a newly released OS (such as WinXP), where developers release updates at a frantic pace to fix bugs and holes not found during beta testing. You could manually surf to Microsoft's Windows Update page (http://windowsupdate.microsoft.com), but how often do you have to remember to do that? An efficient alternate option is to let the OS do much of the work for you.

■ **How To Get Started.** To enable Automatic Updates on your system, you must log in as an administrator or a user with administrator privileges. Next, right-click My Computer, select Properties, and choose the Automatic Updates tab. Here, you can select one of three options:

1. Download The Updates Automatically And Notify Me When They Are Ready To Be Installed.

2. Notify Me Before Downloading Any Updates And Notify Me Again Before Installing Them On My Computer.

3. Turn Off Automatic Updating. I Want To Update My Computer Manually.

When a user chooses option 1 (to download updates automatically), Windows will

occasionally check its update site. If it finds critical updates, it will start downloading the updates automatically and silently. Automatic Update uses technology that determines whether you're currently using your Internet connection, and if you are, it waits until the connection is idle to begin downloading. This is a particularly nice feature for dial-up modem users who need to squeeze every last bit of bandwidth from their connection.

If you use option 1, you'll be notified of the downloaded updates via an icon and message stating that the updates are ready to be installed. Click the icon to reveal three buttons: Details, Remind Me Later, and Install. The Details button lists the downloaded updates with checkboxes beside them to let you select which updates (if any) to install. Remind Me Later prompts you to set a future time and date for a reminder about the update. Clicking the Install button begins the installation of the selected items (all will be installed if you didn't indicate specific selections along the way).

If you select option 2 (to notify before downloading), Automatic Update will display a message indicating that critical updates are available to download (when they are indeed available). From there, you have the option to download what you like, and the process then continues in the same fashion as option 1.

If you select option 3 (turn off automatic updating), you won't receive any notification about updates. However, you can still visit the Windows Update site by clicking the Start button, Help And Support, and Keep Your Computer Up To Date With Windows Update.

Once you've turned on Automatic Updates, you can also access the Automatic Updates tab of the System Properties dialog box to click the Restore Declined Updates button and direct Windows to notify you again about previously rejected updates.

■ **Is It Safe?** Because Automatic Update connects directly with the Microsoft servers, your computer is in no danger of being hacked during the update process. Also, the process doesn't collect personal information from your computer; instead, it checks the OS version number, Internet Explorer version number, any version numbers of other software, as well as Plug-and-Play information for hardware devices.

If you've used Automatic Update in WinMe, you've likely grown to appreciate the seamless updates, especially when they fix security holes. But even though it's nice to know that your OS is keeping an eye on itself, it can be unnerving for some users to have processes occurring behind the scenes—especially online processes. If you're the suspicious type, it may be best to set Automatic Update to simply notify you of updates and let you check the updates at your leisure.

The primary objective of Automatic Update is to keep your computer running efficiently and securely. Even so, noncritical updates periodically appear on the Windows Update site; if a critical update isn't currently available for your computer, Automatic Update may not notify you about the noncritical updates. These noncritical updates can include Windows utilities (for enhancing performance, facilitating upgrades, etc.), Internet and multimedia updates, multilanguage features, and more. With this mind, it's probably a good idea to occasionally check the Windows Update site manually, even if you have Automatic Update enabled. **LS**

by Christian Perry

Remote Assistance

Tech Support Reaches A Whole New Level

Imagine if your computer guru friend—the one you call twice weekly with PC problems—could magically travel through cyberspace to diagnose and fix your computer. Sound like something from the distant future? It's not. Many computer users, from novices to experts, have a friend or relative who knows more than they do. And now, thanks to Windows XP's Remote Assistance tool, these people can connect directly to your computer and make changes, right before your eyes.

Remote Assistance brings user help and support to a new level of interactivity. Most computer experts are all too familiar with the sometimes harrowing process of providing voice support over a telephone line. In many cases, experts could easily cut that support time in half if they only had access to the novice's computer. Furthermore, during phone support, novices are often so busy following the experts' directions that they're unlikely to remember how to diagnose problems themselves the next time a similar situation occurs.

For example, let's imagine that a novice has problems with his display, but doesn't know how to fix it. A typical telephone or e-mail exchange with an expert friend could eventually find the root of the problem, but the novice's inexperience traversing the troubleshooting tools and utilities of his OS (operating system) means he'll need to be walked through every step. With Remote Assistance, the expert could quickly enter WinXP's Device Manager and upgrade the video driver. And if, after a reboot, the problem still exists, the expert could inspect processes running in the Task Manager that might be interfering with the display properties.

Throughout this process, the novice can be watching and taking notes about the steps the expert follows, or even asking questions on the telephone. If the novice's only telephone line is being used for the Remote Assistance session, he still has the option of using Windows Messenger, WinXP's chat utility, to ask questions or otherwise converse with the expert.

Of course, one of the joys of computer ownership is learning the ins and outs of the technology. If you eventually find that *you're* the expert giving advice and support to friends

and family members, you'll likely appreciate the power and ease that Remote Assistance lends to the support process.

■ **The Prerequisites.** For Remote Assistance to work successfully, the computers of both the expert and novice must be using WinXP, and both must be connected to a common network (such as a home LAN [local-area network] or the Internet). Either WinXP Professional or WinXP Home Edition can be used, as both include Remote Assistance capabilities. The only difference between the two editions is that WinXP Professional includes the option to Offer Remote Assistance, a tool that's more suited for corporate help desk environments than home or small office use.

If the novice is using WinXP Home Edition, he must use an **Owner account** (the user account WinXP creates during installation when no previous user accounts exist on the system; this account should be set up with administrative privileges). Also, the novice must be able to transfer a file to the expert, a process he can accomplish through the Help And Support Center via most e-mail programs or Windows Messenger. If the novice isn't using one of these programs, the file (which is actually the invitation) can be sent using another means of file transfer (such as FTP [File Transfer Protocol]).

Send an invitation. To send a Remote Assistance invitation, click Help And Support from the Start menu. Under the Ask For Assistance column, click Invite A Friend To Connect To Your Computer With Remote Assistance. This reveals the Remote Assistance page, where you can invite someone to help you or view your invitation status. Click the Invite Someone To Help You option.

On the next screen, you can choose one of three ways to contact your assistant: use Windows Messenger, use e-mail, or save the invitation as a file so you can send it via another method (which can also include e-mail, but the difference between using this method and the prior e-mail option is that the invitation is saved as a file and then attached to an e-mail message).

Microsoft recommends you use Windows Messenger to send invitations because it works in real-time, allowing you to see if the expert is online. Messenger offers additional ways for the novice and expert to find each other over the Internet, which might be necessary if you're on separate networks or if you're trying to connect

over the Internet through a firewall or NAT (Network Address Translation) machine.

While these are good points, Windows Messenger can seem fairly obtrusive to some WinXP users; in fact, some users actually disable it altogether.

Also, if you're happy with another messaging application, such as ICQ (http://www.icq.com) or AOL Instant Messenger (http://www.aol .com/aim), you may not be willing to use Windows Messenger for chat and its other functions. On the other hand, if Windows Messenger is what you prefer, it's also a good choice for the Remote Assistance invitation process.

By using Windows Messenger, you don't even need to open the Help And Support Center to issue an invitation. From Windows Messenger's Tools menu, simply click Send An Invitation, followed by To Start Remote Assistance, and then click the expert you'd like to invite. Alternately, you can right-click a contact, click Invite, and then click To Start Remote Assistance. After either method, the expert will receive a message he can accept or decline.

If you choose the Use E-mail or Save Invitation As A File method, you'll be able to protect the session with a password if you want. To further protect the invitation, you can specify a time period after which the invitation will automatically expire. (Note that if you wish to manually expire an invitation after you've already sent it, you can do so via the View Invitation Status link on the main Remote Assistance page.)

Receive help. When your invitation reaches the expert, the expert will be prompted for the password you set. After successfully entering the password, the expert can then initiate the session, at which point your computer will verify the password that your expert entered. Your computer will also ensure that the invitation the expert used is a valid invitation (and that it's still open).

Assuming all is well, you'll receive a message indicating that the expert wants to begin the session, and you'll be prompted to start the Remote Assistance session. When the session begins, the Remote Assistance Novice chat window opens on your monitor screen, while the Remote Assistance Expert console opens

on the expert's monitor screen. The expert should now be able to view everything on your screen in real-time.

Even so, the expert can't control anything on your computer just yet. On the Remote Assistance Expert console, the expert will need to click the Take Control button, which sends a message to you, asking if the expert can take control of your system. This message indicates that there are three methods to stop the expert's control of your system: one, press the ESC key; two, hold down the CTRL key and

When you access the Help And Support Center's Remote Assistance page, you can create a new invitation or view existing invitations.

If you don't use Windows Messenger or don't have it installed, you can send a Remote Assistance invitation via e-mail.

press the C key; or three, click the Stop Control button next to your Remote Assistance Novice chat window.

If you do choose to give the expert control of your computer, you can share control of the keyboard and mouse. However, it's still best to relinquish these controls completely while the expert is working because things can get a bit confusing when the computer is trying to interpret input commands from two users.

Give assistance. If you're experienced enough to help fellow users, you'll enjoy using Remote Assistance to troubleshoot their systems. After you accept an invitation and successfully connect to the novice's computer, you'll see the remote Desktop displayed in the right pane of the Remote Assistance window. You can take control of the remote computer by clicking the Take Control button, which then will prompt the novice to grant you permission to take control.

The Status line provides information about your remote connection. The Send A File button lets you send files to the novice, such as drivers or other crucial system files. The Start Talking button enables the voice chat function, allowing you to converse with the novice in real-time. To type messages to the remote user, use the Message Entry box, and click the Send button to send each message.

The Chat History window provides a recorded history of the text messages exchanged between you and the novice, as well as the connect status. The Disconnect button terminates the Remote Assistance session.

■ **Troubleshooting Remote Assistance.** Although Remote Assistance generally works smoothly, problems can arise either from configuration conflicts or program flaws. With this in mind, let's identify several known issues and problems and how to solve or otherwise work around them.

Since Remote Assistance was introduced, the most common stumbling block for users has occurred when trying to provide remote assistance across varying Windows platforms. Remember: the users must have WinXP only, on *both* sides.

You might receive the following error message after sending an invitation to an expert: "(Username) does not have Remote Assistance installed and is not able to accept your invitation." Likewise, the expert will receive this error message: "The invitation from (username) to start using Remote Assistance is declined because the program is not installed on your system." You'll receive this message if the expert you're inviting doesn't have a version of Windows Messenger or MSN Messenger that's capable of starting a

Remote Assistance session. To solve the problem, either ask the expert to upgrade to a compatible version of Messenger, or simply use a different invitation method (such as e-mail).

If the expert loses control of the novice's system, the loss could be caused by something that changed the resolution of the novice's computer, such as a screen saver or another program. Although Remote Assistance automatically reconnects the expert to the novice's computer, it's a good idea to disable the screen saver (right-click the Desktop, click Properties, click the Screen Saver tab, and select None in the drop-down menu) and refrain from starting any programs. In any case, Remote Assistance will prompt the expert to again request control of the novice's system once the reconnection is made.

If the expert attempts to remotely control your computer and receives the following error message: "Remote Control of this computer is not allowed," you'll need to configure your computer for remote control (and, as previously mentioned, if you're using WinXP Home Edition, you should be using an Owner account or be a member of the local Administrators group in WinXP Professional). To do so, right-click My Computer, select Properties, and click the Remote tab. Click the Advanced button under Remote Assistance, and under Remote Control, select the checkbox next to Allow This Computer To Be Controlled Remotely, and click OK. Then click OK in the System Properties dialog box.

If the expert is unable to connect and receives a message indicating the invitation has either expired or was cancelled, but the invitation hadn't actually expired (and you didn't cancel it), you might be able to trace the problem to System Restore. If you've recently restored your system using System Restore and restored it to a date before the date you created the invitation, the invitation will indeed appear as expired or cancelled. You'll either have to send another invitation (recommended) or use System Restore to undo the restoration.

Finally, if you entered an invalid e-mail address while sending a Remote Assistance invitation, Remote Assistance won't notify you that the e-mail never made it to its intended recipient. Why? Remote Assistance isn't able to confirm valid e-mail addresses or whether the invitation was received.

Therefore, make sure the e-mail address to which you send an invitation is valid and working.

**Broadband bliss vs. dial-up doldrums.** In practice, Remote Assistance runs smoothly across xDSL (Digital Subscriber Line) and cable modem connections. Mouse movement is usually so fluid that there's little difference between working on the live computer and the remote computer. But if connecting through a 56Kbps (kilobits per second) or slower dial-up modem, the performance can be a bit sluggish. In fact, dial-up users may even find that the connection stops responding altogether. Microsoft has attempted to optimize the connection for slower modem users.
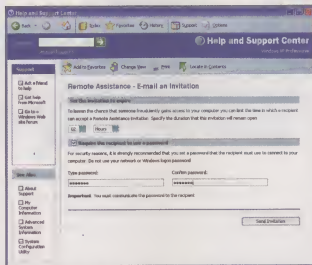
A set expiration time and password are two of Remote Assistance's security measures, so it's a wise idea to use them both.

For instance, if Remote Assistance on the expert's computer detects a dial-up modem on the novice's end, it automatically changes the color to a speedier 8-bit setting and turns off the wallpaper. These two enhancements do help with the speed, and losing a high-color setting and wallpaper doesn't affect the ability to troubleshoot the novice's system.

How safe is it? Obviously, the potential for a security breach with Remote Assistance is mouth-watering for crackers. After all, this tool could give them complete power of a remote computer so they could change, steal, or destroy whatever they like. The inherent technology of the remote connection itself is safe, however. There's no chance that a cyber-roving cracker is going to overtake your expert's live connection to your computer. But if a cracker gets the invitation from the beginning of the process, you're in trouble.

Fortunately, Remote Assistance has several built-in security features that help protect you, but they're only as effective as you make them. The password option is a good start, and it's a better start if you don't consider it as an option but a necessity. And although the password step might seem like an inconvenience, it's a small trade-off for the assurance that someone other than your expert won't obtain—and then use—the invitation.

Once you create the password, you have several options for relaying it to your other party, including e-mail, a phone call, or in person. Obviously, the safest of these is delivering the password in person because if a cracker can intercept an e-mailed invitation, the same cracker can likely intercept an e-mailed password. Likewise, leaving a voice mail with the password isn't nearly as safe as conveying it in person. Remember, you're supplying total access to your computer, so take the time to do it safely.

Another security measure included in Remote Assistance is the expiration option. Like the password option, it's always a good idea to use this feature, as it gives your expert a certain window of time to accept and use the invitation. Make it a personal policy to create short expiration periods; an hour is ideal. You certainly don't want an invitation lingering in cyberspace that's set to expire days from now.

Finally, Remote Assistance wisely uses message prompts throughout the invitation and connection process. The premise here is that no action can be taken on your computer without your consent. But this isn't foolproof, either; if you're away from your computer, anyone with physical access to your computer can accept an invitation, send an invitation, or simply hack into your computer from there. Never underestimate the cunning of computer criminals.

As technologies grow more complex, criminal activities grow with them, often silently, and it's up to you to take the proper measures to avoid any compromise to your computer. If you regularly use Remote Assistance, keep a close eye on pending invitations (under Invitation Status) for suspect activity. Ensure that any invitations in this section are indeed invitations that you sent.

by Christian Perry

Turn Back Time

System Restore Erases Problems After They Happen

We've all been there before. Anxiously anticipating the new functionality of the latest and greatest version of our favorite software, we take the time to download the upgrade, go through the entire installation process, and then innocently sit in front of the computer screen as the system reboots when—uh-oh!—something goes wrong. Error messages rifle the screen, conflicts with other applications freeze the system, and you swear that this is not at all what you had in mind. You groan, muttering unintelligible words because you believe your system has somehow suffered irrevocable damage.

Not so with Windows XP's System Restore standing by. System Restore lets you take a step back in time, back to a more calm period when your computer was able to perform normal, everyday functions (like printing!); when system errors didn't plague every session; and, when, quite frankly, all was right and as it should be in your world of computing.

Microsoft introduced the System Restore tool with the Windows Me OS (operating system) and has expanded it with WinXP, adding a Device Driver Rollback feature that reverses failed driver installs. System Restore repairs the damage that an installation or a virus has done to system files and the system's Registry, a database containing information that your computer needs to constantly reference, such as user profiles and general configuration settings. With System Restore, Microsoft is simply including the basic functionality of third-party

software, such as Roxio's GoBack ($39.95, download; http://www.roxio.com), that have long been available for Windows OSes.

In a way, System Restore finishes off what the Add/Remove Programs tool starts by eradicating every trace of an errant program. When you perform the functions found in the Add/Remove Programs tool, you're simply deleting the files and folders associated with a program, which is an important step, but usually not enough to get your system back in proper working order.

Whenever you install new software or hardware, the process of doing so changes your system files. Sometimes, these changes can cause conflicts, making it impossible for your computer to properly access important system information. System Restore monitors and records what it refers to as "restore points" on a daily basis and whenever a major system change is about to occur (such as prior to an installation) so that you can be given the opportunity to "go back in time" and restore your system if necessary. This eliminates frantic calls to tech support, not to mention the time wasted diagnosing the problem yourself and trying to pick out errant files by hand.

But remember: System Restore is not an uninstaller program. In order to rid your computer of a program or driver that has wreaked havoc

on it, use the Add/Remove Programs tool in the Control Panel to remove software before using System Restore.

■ **How It Works.** Unless you've disabled System Restore (which we don't recommend), or Windows has disabled it due to a lack of hard drive space (System Restore needs a full 200MB of free space to keep running properly), WinXP is quietly gathering restore information and automatically creating a restore point every day that the computer is running. Restore points are created during idle time when there is no mouse or keyboard activity. Your system is also triggered to create a restore point when installing most software, upon performing a system restore, when installing Microsoft's AutoUpdate to WinXP, and before running a backup recovery. Restore points are marked on a calendar and easily accessed through the System Restore tool.

Troubleshooting Tip: If System Restore isn't working, the problem is probably the lack of space available on your hard drive. System Restore requires a full 200MB of free space for minimum data storage. Once you've freed up space on your hard drive, System Restore will automatically re-enable itself.

■ **Put It Into Action.** First, be sure System Restore is running by checking out your system properties from within the Control Panel. Go to the Start menu, point to Control Panel, click Performance And Maintenance, and then double-click the System icon. This will display numerous tabs for monitoring your computer's system, including the System Restore tab. Click System Restore and make sure that the Turn Off System Restore checkbox does *not* have a check mark (by default, System Restore should be on, unless you don't have enough available hard drive space).

From here, you can also change the amount of hard drive space dedicated to System Restore. Use the slider to decrease or increase the amount of space used—from the minimum of 200MB to the maximum of 400MB. The more

disk space allotted means the greater number of restore points available.

When you're ready to use System Restore, you can access it in two different ways, depending on how you like to navigate WinXP. One quick and user-friendly way to find it is in the Help And Support Center. To get there, open the Start menu, click Help And Support, and then look under the Pick A Task heading. Choose the Undo Changes To Your Computer With System Restore option. From this window, you can choose the Restore My Computer To An Earlier Time or Create A Restore Point option. Or, you can find the same window by opening the Start menu and selecting All Programs, Accessories, System Tools, and System Restore.

By creating a restore point manually, you are able to pick a point when your system is running smoothly and freeze that moment in time. This feature is best used before installing a new device driver or software program. That way, if your new configuration wreaks havoc on your system, you can easily return to an earlier setup.

When creating a restore point, you will be asked to enter a name for the restore point in the Restore Point Description field. A good idea is to name your restore point something memorable, such as "Before I Installed New CD-ROM Drive" or "Before Installing Latest Quicken Version." After typing a name for your restore point, click the Next button to move on and confirm the operation.

When restoring your computer, you will see a calendar and a list of restore points, each listed by their creation time. You also will see a few

After launching System Restore, you can begin the system restoration process or designate a restore point of your own.

different types of restore points in the list: System Checkpoints (the restore points created automatically by WinXP); Manual Restore Points (created by you); and Installation Points (when WinXP automatically creates a restore point before you install a program). After you find the correct restore point, click it to select it, and then click Next.

You'll need to close all files and applications before moving on. Click the Next button to begin the System Restore. When it finishes, your computer will automatically reboot.

If your system boots up after a System Restore but is still experiencing problems, go through the process again, choosing an earlier restore point. Continue to do this until the problem is eradicated. Conversely, if the

restore point you chose was too old, you can also revert back to a later or more current restore point.

If your problem originated from an application that you no longer plan to use, be sure to remove it completely because System Restore will not delete all the files associated with the application. Go to the Control Panel, double-click the Add/Remove Programs icon, and remove the application.

It's important to note that any applications you installed or any changes you've made to the system (even something as simple as altering your Desktop appearance or changing your network configuration) after the restore point will have to be reinstalled or reconfigured after running System Restore.

One potential concern with "turning back the clock" is how it might affect all the files on your hard drive, not just the system files. Are you wondering whether System Restore undoes changes to documents or spreadsheets? Rest assured; the process is not exactly like doing a restore of backed-up data, where the data on your drive gets completely overwritten by the older, backed-up data. System Restore only restores application files with common applications extensions, such as .EXE, .VXD, .DLL, .COM, and .SYS. It will not monitor the files you've created that have standard document extensions, such as .TXT, .DOC, or .XLS.

Also, your My Documents folder goes untouched during the System Restore process, so you don't have to worry about those files at all. In fact, it might be a good idea to move any files you fear might be overwritten into the My Documents folder as a

"just in case" precaution. In addition, System Restore will retain your Temporary Internet files (such as Internet Explorer's History, Cookies, and Favorite files), the Recycle Bin files, and the Windows Swap (.SWP) files.

■ **Device Driver Rollback.** You can view the Device Driver Rollback feature as an adjunct to System Restore. Sometimes your system becomes unstable simply because you've upgraded a device driver. These upgrades don't necessarily affect your entire system, so performing a full system restore could be overkill (and could create unnecessary work in the form of software reinstallation and configuration changes).

If a driver is causing your system problems, open the Start menu, click Control Panel, Performance And Maintenance, System, the Hardware tab, and then Device Manager. From here, right-click the device that's causing problems to display the device's Properties dialog box. Choose the Driver tab and click the Roll Back Driver button.

There are certain times that the Device Driver Rollback feature cannot successfully reinstall a previous driver. This is typically when the driver is "unsigned," which simply means it has not passed Microsoft's certification process so it is not completely workable with or known to WinXP. Usually, you will be alerted to this fact prior to the device's installation (although earlier versions of WinXP have been known not to recognize unsigned drivers at the time of installation). In this case, System Restore will be your best recourse for eradicating the driver from your system.

■ **Another Safety Net.** To use System Restore, your system must be able to function well enough to boot to the Windows screen in either Safe Mode or a normal mode. If it can't boot up, all is not lost. There's another option: the Last Known Good Configuration. This feature lets you start your computer using the most recent settings that worked. Essentially, the Last Known Good Configuration restores the system Registry information and driver settings that were in effect the last time the computer started successfully.

The way this works is simple: Start booting up your computer, and when you see the

"Please select the OS to start" message, press the F8 key. Once you see the Windows Advanced Options menu appear on-screen, use the arrow keys on your keyboard to select Last Known Good Configuration, and then press ENTER.

When you start your computer using the Last Known Good Configuration, changes that were made since the last successful startup are lost. You'll have to reinstall applications and drivers if necessary.

■ **The Absolute Last Resort: ASR.** ASR stands for Automated System Recovery, and it is your last line of defense when it comes to restoring a system that is not responding to the standard System Restore or Last Known Good Configuration.

ASR is a two-part process: backup and restore. First, you'll need to make sure the Backup utility is running in Windows. WinXP Professional installs Backup by default, while WinXP Home Edition offers it on the CD-ROM but does not install it by default. If you have WinXP Home Edition, you'll need to install Backup manually from the CD-ROM.

Run the Backup Wizard by opening the Start menu, selecting All Programs, Accessories, System Tools, and Backup. The Backup Wizard will run automatically. Click the Advanced Mode button, and then run the Automated System Recovery Wizard. This will create a floppy diskette with all of your system settings on it, as well as a backup of all your data. The wizard also creates a file containing information about the backup, the disk configurations (including basic and dynamic volumes), and how to accomplish a restore.

To perform a system recovery using ASR, you'll need the ASR diskette you just created, your backed-up data on storage media (such as tapes, disks, or CD-RWs [CD-rewriteables]), and your original WinXP CD-ROM. Put the CD-ROM into the drive and start the computer, press F2 when prompted to do so, and then you'll see a prompt telling you to insert the ASR diskette into the diskette drive. ASR will

do a simple installation of Windows, read the diskette and restore the system files, and then automatically start restoring your computer's data using the backup storage media.

■ **Possible Over Bloat.** With restore points saved every 24 hours, as well as through

To reclaim some hard drive space, open the System Properties dialog box, select the System Restore tab, and adjust the Disk Space Usage setting. Remember, System Restore needs at least 200MB of free space to keep running properly.

To find the Automated System Recovery feature, launch the Backup utility. Windows XP Home Edition users need to manually install Backup.

triggered events such as installations, it doesn't take long for your Restore folder to bloat to extreme sizes. According to Microsoft, the minimum amount of storage you must allow for System Restore is 200MB, but this tool can easily swell up to 400MB if you let it. And once your Restore folder gets this bloated, your system may become bogged down with unnecessary restore points. Microsoft does include a "safety valve" so that System Restore purges itself of about 50% of its contents once it gets close to capacity. But if you're a little daring,

you can also completely clear out System Restore and start over if you want.

To do this, open the Control Panel again, click Performance And Maintenance, click System, and choose the System Resource tab when the dialog box opens on-screen. From here, click the checkbox next to Turn Off System Restore and click OK. The computer will then prompt you to reboot. By doing so, your System Restore data will be completely purged. Once the system boots up, immediately go back to this dialog box and deselect the checkbox next to Turn Off System Restore to enable the tool once again. Then, open the System Restore Wizard again and follow the steps to set a manual restore point.

Another way to avoid an over-stuffed Restore folder is to adjust how much space you let System Restore use. To modify this, open the Control Panel, click Performance And Maintenance, System, and the System Resource tab. Use the slider in the middle to choose a preferred size.

■ **Potential Problems.** Because viruses often attack your system files, there is a chance that an old virus could be resurrected while performing a system restore. But there is a way to easily avoid this catastrophe. After your system eradicates a virus, simply follow the steps we just discussed to ensure that System Restore has been completely cleaned out.

■ **The End Result.** Microsoft has finally made it next to impossible to completely destroy your system's operation. Although System Restore can create some additional work for you, such as creating a need to reinstall applications and reconfigure changes made to the system, its benefits far outweigh any potential negatives. And, with the addition of Device Driver Rollback, Microsoft has really created a user-friendly OS that addresses the needs of users.

But there is one negative that you may not have thought about: You're less likely to get away with using the excuse that your computer crashed the next time you miss a deadline. [LS]

by Cassandra Cavanah

Let The Games Begin

Sideline Fun For Whenever You Need A Break

Windows XP provides plenty of tools for a productive business experience, but there's more to life than just work. We all need a little time to play. And that's where WinXP's games come in. Match wits with the computer or online opponents in a wide array of games that come with the latest OS (operating system) from Microsoft.

■ **The Internet Zone.** The MSN Gaming Zone (http://zone.msn.com) is a Web site devoted to hundreds of online games, from trivia to cards to casino games. It has been around for a while, and now you can jump directly into one of five Internet games from your Start menu—Backgammon, Checkers, Hearts, Reversi, and Spades—provided you've logged on to the Internet. Once you land on one of these games, you'll be matched up with players from around the world, against whom you'll play in real-time.

To get in on the fun, open the Start menu, and click All Programs and Games. (Or your menu may require you to select Accessories to find the Games submenu.) Then, choose the Internet game you wish to play. The first time you choose a specific game, you'll receive some general information about Internet games, such as the fact that Microsoft will send a computer ID to the Gaming Zone, but no personal information is collected from your computer. Click the Play button to be connected to the Gaming Zone and assigned to play with another Internet player.

Ready to try a game? Here's a more detailed look at the Internet games WinXP offers.

■ **Internet Backgammon.** A game widely believed to have started in Greece or Egypt thousands of years ago, Backgammon is a game played by two people. And now, thanks to WinXP's Internet version, you can play against someone in Greece or Egypt, or almost any other country for that matter.

If you're unfamiliar with the rules, don't be concerned; Backgammon is relatively easy to learn. You start with 15 pieces; the object of the game is to roll the dice and move the 15 pieces around the board. Once a piece reaches the "home" area, you roll the dice to remove it from the board. The first player to remove all of his pieces wins. To try this out for yourself, go to the Start menu and find the Games submenu, and then select Internet Backgammon. When the dialog box opens, click Play, and you'll be set up in a beginner's level game.

The MSN Gaming Zone is packed with tips, strategies, and other information on how to play Backgammon online. You won't be sent straight to the site when you open the game from the Start menu, however; you'll need to log on directly. To do so, launch your Web browser and head to MSN Gaming Zone's Backgammon page (http://zone.msn.com /backgammon). The Tips & Strategies section will not only help you improve your game, but it also will teach you about Chouette, a team version of Backgammon.

■ **Internet Checkers.** One of the first board games many children learn to play is Checkers. It's also a great first game for Internet gamers because the rules are fairly simple and the board is easy to view on a computer screen. (Plus, if your first experience is anything like ours, you'll find yourself competing against a friendly opponent who makes the game that much more enjoyable.)

Launch Internet Checkers from the Start menu, click play, and MSN Gaming Zone will automatically set you up in a game against a beginner player. The screen will tell you which color you are.

To refresh your memory if it's been awhile since you last played or to inform you about Checkers if you've never played, your goal is to move your game pieces across the board by jumping over your opponent's pieces without letting her pieces jump over yours. Once you reach the far side of the board, your piece is "kinged," giving it even greater powers.

One of the neat features of this version of Checkers is the Chat menu. During gameplay, you can choose from a number of pretyped phrases, such as "Oops!" or "Good Job," as long as the chat function is turned on. Sure, the Internet can seem impersonal at times, so there's nothing quite like your opponent saying "thank you" at the end of a game to remind you that there's a real person on the other end. For more help and links to more serious competition, visit MSN Gaming Zone's Checkers page (http://zone.msn .com/checkers).

■ **Internet Hearts.** If you're having trouble rounding up four friends, co-workers, or relatives to play a game of Hearts (or you can't find the deck of cards), just fire up your computer and launch WinXP's version of the popular card game. The online version may be somewhat different from the real-life game, as some players may or may not be used to the Jack of diamonds being a beneficial card to take in, but the basic concept is the same.

The goal is to "earn" as few points as possible, while giving your opponents as many points as possible. Once one opponent has reached 100 points, the game is over and the person with the lowest score wins.

Hearts is a tad more complicated than the other two games we've covered so far, so if you find yourself scrambling for some help, head to the MSN Gaming Zone's Hearts page (http://zone.msn.com/hearts). The Tips & Strategies area is packed with ideas for stopping someone from shooting the moon, unloading the Queen of spades on the person with the lowest score, and other useful ploys. You can also pick up some strategies for becoming a more effective passer at the beginning of a hand.

■ **Internet Reversi.** You've never heard of Reversi? Then perhaps you're familiar with it under another name: Othello. Known as a game that takes a minute to learn and a lifetime to master, Internet Reversi is one of the more addictive games in WinXP. It's like Checkers in that playing on the computer screen is almost as friendly on the eyes as playing the physical board game.

You start off with an on-screen board that's basically a grid with an equal number of black and white pieces. Each piece has two sides, and each one is the opposite color on the underside. During gameplay, you work to turn

over your opponent's pieces so they become your color (hence the name Reversi) by surrounding them with your pieces. Your opponent, of course, is striving for the same thing. At the end of the game, the person with more pieces wins.

And yes, there is a MSN Gaming Zone Reversi page (http://zone.msn.com/reversi) where you can find out more. It has both a Getting Started section and a Game Inspection, but it doesn't have a separate area devoted

Internet Checkers is a great game for beginners.

The object of the game with Internet Reversi is to turn over as many of your opponent's pieces as possible.

to tips and strategies as most of the others Gaming Zone Web pages do. Our tip for you? Keep in mind that the corner pieces can't be surrounded and "reversed," so they're great strongholds to occupy.

■ **Internet Spades.** Last but not least, we must mention Internet Spades. Spades is a game in which teamwork really matters. It's similar to Hearts in that four people play, but

in this case, you're teamed up with the person sitting opposite you at a table. With this Internet version, this may refer to someone in the opposite part of the world because, like other MSN Gaming Zone games, you can play with people from around the globe. And you'll have plenty of possible partners and opponents to play with because Internet Spades is one of the more commonly played card games in the Zone.

To play the game, you'll need to understand that it begins by bidding on a number of "tricks." No, this doesn't refer to hiding cards from your opponents; a trick is simply the laying down of four cards. There are 13 tricks to a contract, and you and your partner bid on how many tricks you think you can take. Spades—no big surprise here—is the trump suit.

For more information about the rules of the game, explanations of Spades' conventions, as well as advice on how to bid and other useful information, see the MSN Gaming Zone's Spades page (http://zone .msn.com/spades).

■ **Offline Fun.** If your Internet connection is down or you just feel like challenging yourself and skipping the real-life opponent, you have some other options. Microsoft has been including popular games on the last several releases of the Windows OS, and WinXP is no exception. The half-dozen games include old standbys, such as FreeCell, and new entries, such as Spider Solitaire. To access them, just open the Start menu and select All Programs, Accessories, and if necessary, Games.

■ **FreeCell.** Never played FreeCell before? If so, clear your schedule before you sit down for a "quick" game because, believe us, it won't be quick. In our opinion, FreeCell is one of the more addictive card games you can play on the computer (just our opinion, after extensive testing).

You start with all the cards laid out in eight rows, and the object of the game is to stack them from Ace to King in each suit, using the four free cells as holders for cards.

Microsoft offers a number of tips that might otherwise help you save some time to discover for yourself. For instance, did you know that you can fully see any card by right-clicking it? This is especially helpful when trying to determine the suit of an Ace. To see these tips, launch FreeCell, open its Help menu, and click

Contents. Under the Contents tab, click FreeCell and its submenu Strategies And Tips.

By the way, one of the most fascinating aspects of FreeCell is that it's commonly believed that *every* game is winnable. This has yet to be proven, though, so if you like games of logic, you can try your hand at proving this theorem.

■ **Hearts.** Hearts fans, take heart. WinXP gives you two ways to play the popular card game. Along with Internet Hearts, WinXP includes the long-time favorite standard version.

To begin, just launch the game (again, from the Games submenu on the Start menu) and choose your username, but rather than playing against three other people, the computer plays the other three hands. The object, as always, is to have the lowest score at the end of the game. Unlike the online version, which has the option of scoring points for the Jack of diamonds, the standard version only counts points for hearts and the Queen of spades.

Once you've mastered the game, you might want to fiddle with the Options. Hearts lets you change other player names (use your imagination) and the speed at which the animation runs. To adjust these settings, open the game and select Options from the Game menu at the top. You can also use this menu to turn the sound on or off and see the score sheet at any time (a convenient tool if you're trying to feed points to the person with the lowest score).

■ **Minesweeper.** Looking for some fast-paced action? Minesweeper may be just what the doctor ordered. This deceptively simple game can hook users for hours as they try to master faster and faster times. The object of Minesweeper is to uncover all the mines without landing on any.

The gameboard is separated into a grid, and under each square lies either a mine or a number. You start the game by clicking any of the squares, and this initial action also starts the timer. If a mine appears, you're done for and the game is over. But if a number appears, it tells you how many of the surrounding squares have mines in them. It's like the board game Battleship, only instead

of trying to hit the battleship, you're trying to avoid landing on a mine.

Once you locate what you think is a mine, you can right-click its square to mark it. You can also right-click a square to mark it as a suspected mine and return to it later. Once you've safely located all the mines, the game is over. If your time is a record, Minesweeper records it. By default, Minesweeper first opens
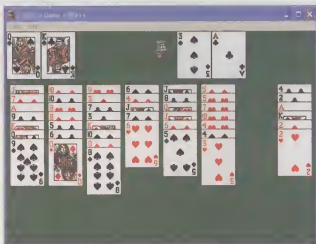
Many users commonly believe, although it's not yet proven, that every game of FreeCell is winnable.

Windows still carries the old standby, Solitaire. To challenge yourself, try its Vegas-style scoring system.

to a beginner level. You can change the difficulty of the game by going to the Game menu and selecting a more advanced level. You can also customize the size of the field or the number of mines in any game.

■ **Solitaire.** Oh, the joys of Solitaire. Solitaire traditionally refers to any card game that is played by only one person, but it is fast becoming synonymous with one particular type of solitary card game, thanks to this version put out by Microsoft. WinXP is just the most recent version of Windows to carry Solitaire.

The goal of the game is to build up the four suits by stacking cards. Odds are good that you've probably played this game at one point or another, so we won't go into all the tips here. If you are new to this game, we recommend that you launch Solitaire (just like any other game we've discussed so far) and consult the options available from the Help menu for an overview of the rules and strategies.

In addition, the WinXP version of Solitaire has a Vegas scoring system, found under the Game menu's Options selection. With this, you start with a debt of $52 (your bet). For each card you play on one of the suit stacks, you win $5. Win more money than the original debt, and you could find yourself rolling in the cash. But don't expect a real payout. Unlike online casinos, where you're wagering real money, this game is just for fun. And there's plenty of it.

■ **Space Cadet 3D Pinball.** Forget about heading to an arcade and pumping quarters into a machine. With your WinXP system, you can play pinball in the comfort of your own home. Space Cadet 3D Pinball, found simply as "Pinball" in the Games submenu, is set up like the traditional game. You merely use your keyboard controls to launch balls and collect points for hitting bumpers, targets, and flags.

To see what each of these controls does or to change them, launch the game and select Player Controls from the Options menu. The first time you play, you'll start as a Cadet and attempt to work your way up the ranks to Fleet Admiral.

One of the fun things about Space Cadet 3D Pinball is that you can have multiple players, just as you would on a Pinball machine at the arcade. Each one takes turns earning points. To configure the game for more than one player, open the Options menu and choose Select Players to add up to four players. During advanced play, you can earn extra balls, increase your fuel supply, turn on wormhole destination lights, and more. For details, see the Pinball Help menu.

■ **Spider Solitaire.** As a relatively new addition to the Windows family of games, Spider Solitaire is a twist on the standard

Windows Solitaire game. The object of the game is similar: You're trying to create stacks of cards in the same suit, from Ace to King; yet, the way you go about it is quite different in Spider Solitaire. Instead of placing cards in a separate area, you place them on top of one another on the piles of cards in play.

Once you've created a complete stack, that stack is removed. You can win the game just by removing all the stacks. Or, you can measure how well you're doing by looking at the Windows' tracking mechanism, which keeps tabs on how many moves you make. The fewer number of moves, the better.

Spider Solitaire starts with the easiest level of difficulty, which is one suit. After you've mastered this level, you can move up by

For more variety, try Spider Solitaire. It's a new twist on an old game.

going to Spider Solitaire's Game menu and selecting Difficulty. Other configurations include automatically saving a game upon exiting, including sound effects, using animation while dealing, and more—all of which

can be found under Options in the Game menu.

■ **The Final Play.** If we've described a game here that you'd like to play, but it doesn't seem to be installed on your system, find your WinXP installation CD-ROM and insert it into your computer. Next, log on as a computer administrator. If you're the only one using this computer (for example, if it's your home computer and you're the sole user), you're already set up as the administrator. From the Start menu, go into the Control Panel and select Add/Remove Windows Components. This wizard will walk you through the process of adding individual games to your system. **LS**

by Heidi V. Anderson

Plus! Games

Do you want to play even more games than those that come with the Windows XP Home Edition? You're in luck. Microsoft Plus! for WinXP ($39.95; http://www.microsoft.com/catalog; click Plus! for Windows XP from the drop-down menu) is an add-on package of digital media features and video games. It includes three 3-D games: HyperBowl, Russian Square, and Labyrinth. Along with the games, the pack includes additional features for WinXP's Media Player.

HyperBowl. Strike! Spare! Turkey! You don't need to head to the local bowling alley to hear these phrases. They're all available on your computer when you fire up HyperBowl, the 3-D bowling game from Microsoft. HyperBowl's snazzy graphics and sounds create an exciting experience.

Start your game by heading to the Classic Lane, which appears when you first launch HyperBowl. While this doesn't look like any bowling alley we've ever played in—thanks to the palm trees and shooting stars—the game is the same. Move your mouse to roll the ball down the lane. Keep in mind that a moderate speed is best. Move the ball too fast, and you end up with a split. Too slow, and you won't have enough force to knock any pins over. Score the game just as you would in standard bowling by knocking down as many pins as possible.

You can also strike up a game (no pun intended) in Italy. Pins of Rome is an alley in ancient Rome. As you roll a ball down a curved portico, watch out for the urns and other obstacles.

Russian Square. Look out, Tetris fans. Russian Square may soon become your new favorite.

Russian Square, modeled after Tetris, requires you to create matching lines of blocks as quickly as possible. Here's how it works: With your keyboard or mouse, you move an "active" block around and into a grid until all the blocks in any row or column match. Once they do, the row or column disappears. You then move up to the next level, where things get a little tougher.

While the game may be a bit more difficult to learn than others, the Help file provides all the necessary rules. It also offers some tips and pointers on strategy. Plus, the game comes with numerous customizations. So, if the neon boxes are making you dizzy, head to the Options menu, select Themes, and choose a different look (such as Candy, perhaps?). You can also choose from among three soundtracks or turn the music off altogether.

Labyrinth. Microsoft calls Labyrinth "the ultimate test of

hand-eye coordination," and it just may be if you're considering the universe of computer games. This game adapts the classic maze game. You have three balls, and the object of the game is to guide the ball through the maze without letting it fall into a hole. Hit a certain milestone, and you're awarded an extra ball. As you move the ball, collect items and complete mazes so you can pick up points and move on to higher levels.

Labyrinth has a couple of game modes, both of which are designed to appeal to different personalities. The Arcade Mode challenges you to reach the end of a maze while collecting "gems." But if you like pressure, you might opt for Race The Clock, which is similar, but adds the extra element of requiring you to complete a maze within a certain time period. □

PDA Precision

How Well Windows XP & PDA Applications Work Together

With all the brouhaha surrounding Microsoft's new Windows XP OS (operating system), it's easy to forget that it's not the only game in town. In fact, there is an alphabet soup of other OSes powering an army of different PDAs (personal digital assistants). In theory, they should all play well together, exchanging data seamlessly with the precision and accuracy of an atomic clock. *Right.* In reality, well, as Shakespeare said, "ay, there's the rub."

The most dangerous time for the entire computer industry is during the first three-to-four-month period *after* a new OS is released. That's when manufacturers are racing to market new products, update old device drivers, and most importantly, gain Microsoft's approval and blessing on both.

Microsoft's sanction is vital because device drivers govern so many mission-critical functions, including monitor and printer stability, USB (Universal Serial Bus) hub support, and syncing PDA data. "Device drivers are so intimate with an operating system that installing the wrong one or one that does not fully support XP can cause the entire system to crash and fail," says WinXP expert Chris De Herrera, creator of CEWindows.NET (http://www.cewindows.net), one of the oldest and most prestigious PDA sites.

Citing this complexity and potential OS instability, Microsoft's approval process has been cautious, though critics claim the software giant is dragging its heels in approving drivers from competitors. As of this writing, for example, USB drivers for Palm-powered PDAs have not been "officially approved" by Microsoft. That's not to say the drivers don't work perfectly. Palm insists they do. However, unless you know this—and what to click during installation—you won't be able to load Palm's Desktop or sync software on a WinXP PC.

Another consideration: Even though more WinXP-approved products, drivers, updates, and patches are flooding the market, there is less competent technical support. Expert tips and tricks, readily available for older, battle-tested OSes and products, are simply not yet available for WinXP. It's not that WinXP is being ignored;

it's just so new that the industry is still learning what it can and cannot do under combat conditions.

As new WinXP products are introduced, old favorites are grandfathered out of existence. The new, higher system requirement limbo bar can also result in software writing on a PDA but requiring an upgrade to work on a WinXP PC. Case in point: By not letting users directly upgrade to WinXP from Windows 95, Microsoft has all but officially announced the venerable OS' retirement.

PDA users who don't pay strict attention to the new rules governing WinXP's interaction with their device risk losing and/or damaging data during synchronization (provided the process works at all). Just as older software won't make the jump to WinXP, neither will some older PDA software. The solution: Upgrade the software on your PDA or say *sayonara* to working with WinXP.

■ **After More Analysis.** Certainly, not everything is Microsoft's fault. The truth is, if you've just bought a new WinXP PC and new PDA and don't have any legacy software or files to consider, there's nothing to worry about, at least as far as safely dancing data between devices is concerned. Outside of downloading the latest version of the PDA's sync software and some initial setup tinkering, it's smooth sailing. The synchronization waters facing current computer and PDA owners, however, are much choppier because WinXP has to navigate though an ocean of different OSes, hardware, and software configurations.

For example, PDAs by Palm and Handspring run on one OS: the Palm OS, typically on a 33MHz processor with 8MB of memory. Pocket PCs from Compaq, Hewlett-Packard, and Casio run on either Microsoft's Windows CE OS or the just-released Pocket PC 2002 OS. Most Windows-powered devices run on a StrongARM 206MHz processor with either

16MB or 32MB of memory; however, some older models, such as HP's Jornada, used the Hitachi SH3 chip. Finally, BlackBerry, a popular wireless e-mail device with PIM (personal information manager) functions, is powered by yet another OS on an Intel 386MHz processor with 4MB or 5MB of memory.

In order to link to and exchange data with any Windows-powered desktop or notebook computer, every PDA requires special synchronization software. Naturally, one size does not fit all. Each company piggy-backs data under its own proprietary program. Palm-powered devices ship with standalone Desktop Software for Windows and Mac (http://www.palm.com /software/desktop), which includes a HotSync Manager for syncing to Microsoft Outlook on a WinXP PC. Most Pocket PC devices transfer data with ActiveSync (http://www.microsoft.com /mobile/pocketpc/downloads/activesync35 .asp), but some, like those from Casio, come with their own sync software. Meanwhile, BlackBerry models dance with Pumatech's Intellisync (http://www.intellisync.com).

Each device purports to seamlessly exchange data with applications running under WinXP. But which applications? Since 1997, Microsoft has released four versions of its popular personal information manager: Outlook 97, 98, 2000, and 2002. Also on the market since 1997 are three versions of its office suite: Office 97, 2000, and XP. And that's not even including various patches, fixes, and updates. Granted, they're all Microsoft products, but you'd be foolish to assume they're one big happy family and all sync safely.

Confused? Well, stay calm. If it sounds like you'll need a scorecard to keep track of all the WinXP and PDA players and a map to side-step sync software landmines, take heart. We've talked to the eXperts, palavered with the Palm powers, pow-wowed with Pocket PC professionals, and bandied with BlackBerry big-wigs—all to show you *exactly* how to swap and sync data safely between any PDA and WinXP PC.

■ **Prepare Your PDA For Great XPectations.** Whether you've just bought a new WinXP PC or upgraded an old one, congratulations and welcome to the stalwart club that industry analysts call "early adaptors" (and computer insiders call "guinea pigs"). For the next six months, or until Microsoft releases an upgrade of OS fixes known as a service pack, you'll be on the front line of technology, helping the software giant and other manufacturers discover bugs and other unforeseen glitches.

"During this critical 'switch over' period, it's more important than ever to regularly back up your data on your PC and PDA," De Herrera says. In theory, you may not be able to avoid every WinXP-to-PDA pitfall, but you can protect yourself. Don't forget to check little things such as the date and time on every device. Even a few minutes off on one or the other can result in a file appearing newer than the one it's replacing. The result is products that sync both ways can mistakenly overwrite a newer file with an older one.

Go to the Web sites of all the hardware and software products you currently use and download the latest WinXP updates. If one doesn't exist, look for information about when—and if—it will be posted. Keep in mind, not all software will be updated, and you may be forced to abandon some favorite products. For example, at press time, Ontrack Data International (http://www.ontrack.com) had not made a decision whether to update PowerDesk, its celebrated Windows Explorer replacement.

When you're finished updating and installing WinXP desktop computer components, it's time to turn your attention to your PDA. Using the proprietary sync software, copy or back up important PDA data to your desktop. For extra protection, De Herrera recommends copying PDA data to tape, CD, or a Zip disk.
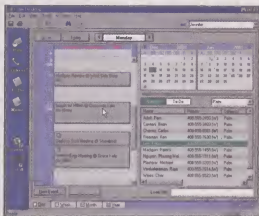
Next, check the PDA programs you use every day, such as your e-mail client,

Palm's HotSync and Mail Setup modules work seamlessly with Windows XP. You can sync e-mail directly with popular programs such as Microsoft's Outlook and QUALCOMM's Eudora.

contact manager, address book, to-do list, etc. Unfortunately, there is no "all-in-one" ombudsman site that lists all the Palm or Pocket PC products and their WinXP-compatibility status, so you'll need to do some footwork or, in this case, some Web work.

At Palm's Web site (http://www.palm.com), you'll find updates and information about the OS, sync software, the Palm Desktop, and other

You can greatly reduce the potential of Windows XP bottlenecks simply by deciding what business you want to keep in sync between your WinXP PC and PDA.

Palm published products. You'll find the Pocket PC equivalent at Microsoft's Mobile Devices site (http://www.microsoft.com

Many users prefer to use Palm's streamlined Palm Desktop software rather than install any Microsoft products, such as Outlook.

/mobile/pocketpc) and updates to the BlackBerry Desktop Manager at BlackBerry's site (http://www.blackberry.net).

If you're using special PDA software specific to a hardware manufacturer such as Handspring (http://www.handspring.com), HP (http://www.hp.com/jornada), or Casio (http://www.casio.com/personalpcs), you'll need to visit their respective sites and check for compatibility issues, updates, and downloads. For example, to upgrade Compaq's iPAQ models to the new Pocket PC 2002 OS, visit its Compaq iPAQ Pocket PC 2002 Upgrade page (http://www.compaqorder center.com/ipaq2002upgrade/secdefault.asp).

Pay particular attention to any third-party program that replaces, enhances, or shares data with any longstanding Microsoft product with multiple versions such as Office. Every add-on, utility, or application that works with Outlook, Word, Excel, Money, and even Windows Media Player, is suspect.

Interestingly enough, on the Palm-side, WinXP compatibility and conversion is less of an issue, even though there is a greater number of third-party software supporting the Palm OS than either of the Pocket PC OSes. Unlike the Pocket PC, the Palm OS wasn't built around swapping and syncing data between Microsoft applications. All Palm units include the Documents To Go standard synchronization software that syncs data to Outlook, Word, Excel, and PowerPoint. You can purchase a professional version ($69.95; http://www.dataviz.com), as well as other third-party sync programs that support additional formats, such as Adobe's PDF (Portable Document Format) files.

These synchronization programs, known as conduits, are in charge of bridging the gap between Palm-powered PDAs and the Microsoft desktop components. Furthermore, says Ray Combs, Palm's director of software solutions, many Palm users choose to circumvent Microsoft applications such as Outlook, in favor of the company's-simpler Palm Desktop software.

A similar standalone PIM desktop solution exists for BlackBerry users.

Conversely, Microsoft's more robust PDA OS, and the fact that there are two of them, actually makes it more complicated to exchange data with a WinXP PC. As if this wasn't problematic enough, this conversion process is made even more difficult depending on what version of software (such as Office, Word, Outlook, etc.) is running under WinXP. The older the application, the more convoluted the conversion, and the more potential for data derailment.

To make matters worse, even the solution isn't foolproof. While upgrading desktop applications and downloading the latest version of Microsoft's ActiveSync software should eliminate the majority of conversion conundrums, it doesn't fix everything. For example, neither the current version of Windows CE nor the new Pocket PC 2002 OS have built-in converters for the new Office XP versions of Word or Excel (Word 2002 and Excel 2002), De Herrera says.

In order to share information from your WinXP desktop to your Pocket PC, you'll need to first save desktop data in an older Office format and then sync it over to your PDA. And if you receive an Excel 2002 or Word 2002 e-mail attachment on your Pocket PC, you won't be able to read it unless you first ActiveSync it over to your desktop or notebook computer, read it there, and then transfer it back.

Even features between the two Pocket PC OSes aren't totally compatible. In order to skirt around the fact that older Pocket PCs have 16MB of flash ROM vs. the 32MB found in newer models, Microsoft has created two versions of the new Pocket PC OS. A full-featured version comes preinstalled on new Pocket PC models. Consumers upgrading to the new OS will be given the option to selectively install programs such as Windows Media Player. What they won't get, however, is Word's spellchecker (which means it won't be accessible in Outlook, either). The upgrade to the new OS doesn't include it, nor are there any options to patch it, De Herrera says. The only way to get this feature is to buy a new Pocket PC.

PDA experts, such as De Herrera, are quick to point out that upgrading applications on your WinXP desktop computer should resolve most PDA synchronization hiccups. However, some software simply doesn't exist in all PDA formats. For example, Pocket PCs ship with an applet for Microsoft Money. Pocket Quicken

exists only in the Palm universe. If you're using Quicken on your desktop computer and want to use it on your Pocket PC, you'll need a third-party conduit utility such as Keep Track from Ilium Software ($19.95 for the PDA
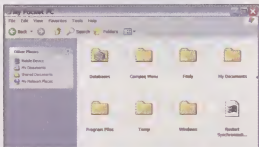
If you're upgrading from Windows CE to the new Pocket PC 2002 operating system, use ActiveSync to copy PDA files over to your Windows XP PC. After you finish the upgrade, syncing your Pocket PC to your WinXP PC will automatically shuttle back all the PDA files.
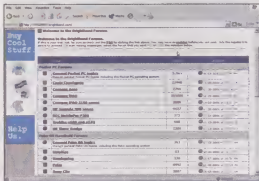
At Brighthand's forum, you can post a question and receive quick feedback from fellow PDA users.

module, plus $10 for its desktop counterpart; http://www.iliumstore.com/keeptrack.html).

If you're starting to feel like a circus juggler, De Herrera says you can greatly reduce the potential of WinXP bottlenecks simply by deciding what information you want to keep in sync. Do you need e-mail on your PDA or just contacts and a calendar? Will you be doing word processing, spreadsheets, expense reports, or something else? By deciding what information is important (and what's not), you can better decide what applications you'll need on each device.

Next, do your homework. Like Santa, make a list of all the programs on your WinXP PC and PDA that play nice and exchange data, and check it twice. Chances are, there are not as many as you think, and most are from well-established companies such as Microsoft, Palm, or Intuit. Check out each manufacturer's Web site for upgrades, patches, and notices

about WinXP compatibility issues. And of course, wherever possible, bite the bullet and upgrade. This is especially critical if you're using older Microsoft programs.

Finally, when in doubt, chicken out . . . at least for now. Remember: The majority of WinXP-to-PDA compatibility and synchronization issues will eventually be ironed out. What doesn't sync today, says De Herrera, will most likely be patched tomorrow.

■ **Palm Devices To WinXP.** Syncing a Palm device to a WinXP computer is as easy as a paint-by-numbers project. If you've just bought a new WinXP PC or upgraded your old one, Combs recommends downloading and installing the latest version of Palm's Desktop Software.

Although the software automatically installs itself, the process is not seamless. As we mentioned earlier, when this issue went to press, Palm's USB drivers have not been WinXP-certified. Because of this, WinXP stops the install and asks if you want to install the unapproved drivers. Combs says it's perfectly safe to click Yes. Then, to sync up, just drop the Palm device into the included USB cradle, and the HotSync software springs into action. Please note that in rare instances, the USB connection may not work. Should this occur, try plugging it into another USB port.

Another hitch to take note of: Although WinXP supports multiple users being logged onto a computer at the same time, the Palm OS does not. If two Palm users are sharing the same WinXP computer, Combs says you'll need to create two different WinXP user accounts, and only one user can be logged on at a time. If you attempt to HotSync data while two or more users are logged into WinXP, some Palm units will display the "HotSync operation complete" message even though no information actually synchronized between the PDA and the desktop computer.

Otherwise, Combs reports that Palm's HotSync Manager, Mail Setup, Palm PIM Desktop, and Expense Report module work seamlessly with WinXP. You can directly sync e-mail with popular programs such as Microsoft Outlook Express, QUALCOMM Eudora, Netscape Communicator, and Lotus cc:Mail. Or you can choose to install conduits such as PocketMirror from Chapura (standard edition included with all Palm devices, $49.95 for Professional version;

http://www.chapura.com) to synchronize information from Outlook, for example, with Palm's Date Book, Address Book, To Do List, and Memo Pad. The caveat is that you can choose to synchronize these applications with either Palm Desktop or Microsoft Outlook, but not both.

For more information, check out the Palm Desktop Software 4.0.1 For Windows FAQs page (http://www.palm.com/support/downloads/palmdt_4_faq.html). Palm also has extensive WinXP Compatibility coverage at one of its Support Web pages (http://www.palm.com /support/helpnotes/winxp_comp.html)

■ **BlackBerry To WinXP.** Like Palm, setting up a BlackBerry PDA couldn't be easier. Simply install the software that comes with the unit, hook up the recharging cradle to your PC's serial port, and you're done.

Unlike other PDAs, BlackBerry devices are designed for "always on" wireless e-mail access. The pint-sized titans can receive e-mail sent to a desktop computer, as well as send e-mail out, all using your existing corporate or personal e-mail.

Core PDA functions include a contact list, calendar, alarm clock, calculator, to-do list, and memo pad. In addition, the BlackBerry Enterprise Solution is the only PDA that can wirelessly sync up its calendar application with Outlook.

BlackBerry's standalone Desktop Software 2.1 (http://www.blackberry.net/support /downloads/index.shtml) loads on your WinXP Desktop and includes Pumatech's Intellisync software, which you can configure to exchange data with major PIM programs such as Outlook, Lotus Notes, Lotus Organizer, Act, GoldMine, and Netscape Communicator. As of this writing, BlackBerry has reported no problems syncing data to WinXP computers, says Mark Guibert, vice president of brand management at Research In Motion. For more information, check out BlackBerry's Desktop Manager FAQs page (http://www.blackberry.net /support/faqs/desktop/index.shtml).

■ **Pocket PC To WinXP.** Leave it to Microsoft to make it more difficult and confusing to sync data between its own OSes and applications. If you've upgraded to WinXP, be sure you have the latest version of ActiveSync on your Pocket PC. Version 3.5 contains general tweaks and improvements to the connection between your desktop computer and PDA, including faster and more reliable USB connections, more options for

serial devices, and better installation. It also boasts full compatibility with both WinXP and Office XP, De Herrera says.

The easiest way to see what version of ActiveSync is running on your Pocket PC is to go to your desktop PC, double-click the sync icon in the System Tray, choose Help, and then select About Microsoft ActiveSync. (Tip: After installing ActiveSync, you'll need to reinstall AvantGo [http://avantgo.com] client software on your PDA.)

If your Pocket PC is running Windows CE and you've previously synced data to your PC running an older version of Windows, you shouldn't encounter problems syncing data to the same applications running WinXP.

Where this gets tricky, however, is if you're using an old Office 97 components on your WinXP PC. The problem, explains
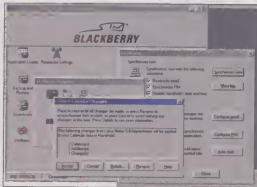
BlackBerry's Desktop Manager includes Intellisync, which you can configure to exchange data with major PIM (personal information manager) programs.

De Herrera, is you need ActiveSync 3.5 to exchange PDA data with WinXP-powered PCs. The new sync software, however, does not support Outlook 97 or any other Office 97 application. ActiveSync 3.1 does support Office 97, but it doesn't work with WinXP—at least not officially. So, you can take your chances, but results are not guaranteed.

The easiest solution is to upgrade Office, and if possible, do it before you switch over to WinXP so you can test the synchronization process. If you've already upgraded to WinXP, be sure to back up your PDA's data before attempting a sync; otherwise, you risk losing or damaging data during the transfer, as well as possibly damaging your PDA.

Another problem, De Herrera says, is in order to get WinXP to play nicely with Pocket Money, you'll need a special sync upgrade (available for free) from Microsoft's Mobile Devices (http://www.microsoft.com/mobile/downloads). Even

so, the download only works if you're using Money 2001 or Money 2002 on your desktop computer. If you're running anything else, tough luck. Again, the solution is simple. Upgrade the older version of Money running on your desktop computer.

Finally, if you're upgrading from Windows CE to the new Pocket PC 2002 OS, De Herrera says it's critical to use ActiveSync to first copy all the PDA files (such as Word and Excel documents) over to your WinXP PC. As part of the install process, the new OS overwrites all PDA programs and data. After the install is successfully completed, syncing your Pocket PC to your WinXP PC will automatically shuttle back all the contacts, e-mail, Word documents, and other files.

Keep in mind that ActiveSync only backs up your PDA's main storage data. To back up information stored on a CompactFlash Card to your WinXP PC, you'll need a special utility called CF2Desktop ($19.95; http://www.doctorce.com/cf2desktop.htm).

For more information, check out Microsoft's Pocket PC Web site (http://www.microsoft.com/mobile/pocketpc). For a detailed list of Pocket PC 2002 bugs and workarounds, check out the Pocket PC 2002 Bugs & Software page from CEWindows .NET (http://www.cewindows.net/bugs /pocketpc2002.htm).

■ **PDA Projections.** Despite the current stormy climate, the future forecast of WinXP-to-PDA synchronization looks bright. You can eliminate most problems by upgrading to the latest version of software on either your WinXP PC or PDA. Other mishaps will eventually be ironed out by either Microsoft, Palm, or the offending software publisher.

In the meantime, use the Web to stay current on problems and solutions. Sites such as Brighthand (http://www.brighthand.com), as well as newsletters such as Woody Leonhard's popular Woody's Windows XP (http://www.woodyswatch.com/winxp) and Woody's Palm Watch (http://www.woodyswatch.com/palm), boast a mother lode of practical information, tips, fixes, reviews, and workarounds for just about every PDA.

For even speedier feedback, check out Brighthand's discussion forum (http://discussion.brighthand.com). There, you can post questions and get answers from fellow PDA users in mere hours (often within minutes). [LS]

by Michael Cahlin

10 Cool Things Users Should Know About Windows XP

Features & Tools You Won't Want To Do Without

Most reviews of Windows XP agree: Microsoft's programmers made the new Windows OS (operating system) better, stronger, faster, safer, and even more reliable than any of its predecessors. From Windows NT and Windows 2000, WinXP (as in "eXPerience") inherits a secure, stable foundation (but without the complexity). From Windows 95/98 and Windows Me, WinXP inherits compatibility with new hardware and software, plus a toolbox of utilities and add-ons for working with digital media images, video, and audio.

And while many touted features are new to WinXP, Microsoft actually introduced several of these features in simpler forms in previous versions of Windows, such as the folder views of Win95, the window/cursor animation of Win98, System Restore in WinMe, and folder/file encryption in WinNT.

The *really new* WinXP features can be drilled down to Fast User Switching, Remote Assistance, Windows Messenger (an advanced combination of MSN Messenger and Net-Meeting), a personal firewall, and the robust MP3 playback capabilities of the muscled-up Windows Media Player for WinXP. WinXP is also peppered with new, feature-light add-ons licensed from vendors selling more robust packages. For example, WinXP's ability to burn CD-Rs (CD-recordables) and CD-RWs (CD-rewriteables) is a watered-down version of Roxio's full-bodied Easy CD Creator 5 Platinum ($99.95; http://www.roxio.com).

But mere stats and facts do not begin to reveal the whole WinXP story. For that, Microsoft is spending $200 million worldwide on TV, print, and online advertising. "Yes You Can" is WinXP's new slogan and Madonna's "Ray Of Light," while not as catchy as the "Start Me Up" rock anthem from the Rolling Stones that kicked off the Win95 release, is the official WinXP launch song.

To hear Microsoft's well-oiled public relations machine tell it, the software giant is positioning WinXP Home Edition ($199) "as its most important consumer upgrade since Windows 95." And WinXP Professional ($299), a superset of Home Edition, is the evolutionary successor to WinNT and Win2000.

The first wave of hype is designed to sell you on WinXP's great XPectations. According

to Microsoft, WinXP is simpler, cleaner, and safer, not to mention being crash-proof, attractive to multiple users wanting to share a single PC, and a "smart" choice for broadband and Internet connectivity. To quickly see what Microsoft *wants* you to know is easy: Check out their WinXP site (http://www.microsoft.com/windowsxp).

We, on the other hand, want to dig a little deeper. Our goal: To give you the inside scoop on the coolest and freshest features.

■ **Our Top 10 List Of Cool Tools.** Here is what we believe are the 10 best features—some big, some small—buried slightly beneath the surface of what everyone agrees is the best OS Microsoft has ever released.

1 **ClearType.** By turning on WinXP's ClearType, a font-smoothing feature, your LCD (liquid-crystal display) and flat-screen monitors, as well as the LCDs of notebook computers, will look much better, resulting in less eyestrain for you. Chandler Myrick, WinXP product manager, says that ClearType "refines jagged pixels and smoothes the edges
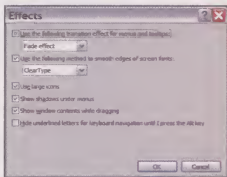
ClearType refines jagged pixels and smoothes the edges of fonts, making them more readable.

of fonts, making them more readable." The technology works hand in hand with the monitor's refresh rate, and, simply put, the results are breathtaking. Interestingly enough, WinXP ships with this amazing feature turned off by default. The easiest way to activate it is to right-click the Desktop, choose Properties, select the Appearance tab, and click Effects. Check the Use The Following Method To Smooth Edges Of Screen Fonts option, and then select ClearType from the drop-down menu. Click OK to save your change and close the Effects dialog box, and then click OK again to close the Display Properties dialog box. You should see the difference in display quality
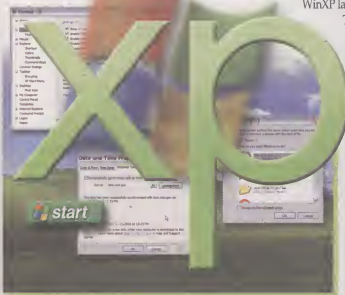
immediately. For more information, see "A Sight For Sore Eyes" on page 44 in this issue.

2 **Internet Time Synchronization.** Windows has always been able to display the time, but what it couldn't do—until now—was *check* the time, Myrick says.

True, older versions of Windows were "smart" enough to automatically switch between standard and daylight-saving time.
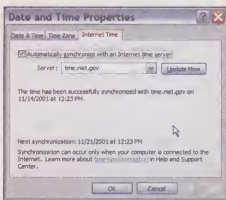
Windows XP uses the Internet to periodically check atomic clocks, and then it automatically updates your PC so you're always on time.

However, if your clock was set fast or slow, or if you lost a few seconds here and there, you either had to live with it or surf to one of the atomic clock sites, such as one maintained by NIST (National Institute of Standards and Technology) and USNO (U. S. Naval Observatory) at http://www.time.gov, and reset your computer's clock manually. You might have even tried to download a shareware product such as Dillobits Software's YATS32 (Yet Another Time Synchronizer; $14.95; http://www.dillobits.com) and assigned it the task of keeping your system clock updated.

For many users, this isn't a big deal . . . unless keeping the right time on your PC is critical. For example, maybe you rely on the time stamps generated by your computer's clock that appear on e-mail and files. Plus, if you're syncing information between a PDA (personal digital assistant) and a computer, the wrong time can result in the wrong file being transferred and overwriting another one.

In WinXP, a new feature known as Internet time synchronization uses the Internet to periodically check atomic clocks, and then automatically updates your PC so you're always on time.

To activate this timesaving feature, right-click the time display located in the System Tray on the right side of the Taskbar and select Adjust

Date/Time. Click the Internet Time Tab, and click the checkbox next to Automatically Synchronize With An Internet Time Server. Select a server (it doesn't make any difference which one) from the drop-down menu, and click Apply. To check the time, click the Update Now button and wait a few seconds until the time synchronization displays. When you finish, click OK. WinXP automatically syncs the time once a week (provided you're connected to the Internet). For more information, see "You're On The Clock" on page 76.

3 **System Restore.** "Put it back the way you found it." How many times did you hear that phrase uttered by adults as you were growing up? More importantly, how many times have you wished you could "turn back time" and put Windows back the way you found it before installing a new application or hardware driver that caused your system to have a nasty reaction? System Restore does exactly that. It monitors all system changes and automatically creates what are called System Restore points, which are basically backups of vital system settings and information.

Using System Restore, you can bring your computer back to a previous state using three different criteria. You can pinpoint a particular event, such as when you installed new hardware or software; you can restore to a particular date; or you can restore to what's called a system checkpoint. Here, WinXP automatically takes a snapshot of your system throughout the day and keeps track of these settings for two weeks. If you're not sure what caused the problem or when the problem actually started, you can keep restoring to previous system checkpoints until, like Goldilocks, you find one that's "just right."

To activate System Restore, click the Start button, and then choose All Programs, Accessories, and System Tools, where you'll find System Restore. When the System Restore Wizard appears, you'll be asked to choose from two options: Restore My Computer To An Earlier Time or Create A Restore Point. Both options are practically foolproof, holding you by the hand as you make selections.

For example, if you choose the Restore My Computer To An Earlier Time option, WinXP displays a separate "calendar and date display. On the calendar, dates marked in bold illustrate every restore point created by the system. Click a date, and a list appears in a separate date display with all the restore points created on that day.

Click Next, and System Restore gathers information. A dialog box with a progress indicator graph keeps you informed of the restoration process. When it finishes, your PC automatically reboots and WinXP presents a Restoration Complete dialog box with details about the restore. Click OK to complete the process, or you can make another selection and start again.

Keep in mind that System Restore merely allows WinXP back to a restore point when your PC worked. It does *not* uninstall the offending software or driver. You'll need to do that yourself using the software's uninstall utility (if it has one) or the familiar Add/Remove applet in the Control Panel.

Getting back to the other option in the System Restore Wizard, Create A Restore Point, you'll find this option a cinch to use. Select its radio button, click Next, and then type in a name in the field provided. For example: **Thursday, 10 am, installed new graphics card**. Be as specific as possible, click the Create button, and wait for WinXP to display a Restore Point Created screen in the wizard. When it does, click Close.

For more information, see "Turn Back Time" on page 60.

4 **Remote Assistance.** How many times have you had computer problems and wished you could get your hands on a Microsoft tech support person? Now you can with WinXP's new Remote Assistance feature. In order for it to work, there are two critical caveats. You'll need a connection to the Internet, the faster the better. Although this feature works with a slow dial-up connection, you'll be much happier using a broadband connection.

More importantly, you'll need to consider how comfortable you are letting a Microsoft support technician take over your computer remotely because he'll be able to see what you see on-screen.

Here's how it works: Call tech support, and if the representative can't solve your problem over the phone, he'll direct you to use Remote Assistance (along with its password and time expiration options) so he can remotely take control of your system. Depending on your Internet connection, it might take a few minutes for all of the parties to officially "shake hands," after which you'll need to review and respond to a few message prompts to grant Microsoft permission to temporarily take over your PC. From there, the technician can check your system's settings, and in most cases, he can find and fix the problem faster and easier than ever before.

And there's more: You're not limited to support from Microsoft. Provided the remote user is also running WinXP, you can configure Remote Assistance to let anyone take control of your computer. Once you grant permission, your computer accepts the remote user's keystrokes or mouse clicks as your own, during which time you can talk with the remote user over the telephone (if you don't use a dial-up connection) or chat for free using the Windows Messenger instant messaging client. This is a tremendous feature if the friend or relative you're helping (or someone helping you) lives far away.

Be aware, however, that Remote Assistance could potentially be a threat to you and your data if you don't follow Microsoft's recommendations and effectively use the password and expiration options. For more information, see "Remote Assistance" on page 57.

In addition to its ability to ask a human being for help, WinXP's Help system has been completely redesigned and revamped to simplify troubleshooting and configuration. Intelligently designed, you can conveniently browse standard Help files, jump over to Microsoft's Web site for updates and assistance, search for a term in the glossary, or launch a legion of troubleshooting tools. For more information, see "A Lot Of Help" on page 126.

5 Application Sharing. WinXP comes with its own instant messenger program, called (what else?) Windows Messenger. And, it works just like competitive programs such as AOL Instant Messenger (http://www.aol.com/aim) and ICQ (http://www.icq.com). But to label WinXP's Messenger as merely a "me-too" utility that lets you contact people online in real-time and exchange text-chat not only does it a grave disservice, but it also ignores many of the Windows Messenger's more powerful features.

For instance, provided both computers are running WinXP and using Windows Messenger, it's possible for one user to run an application on the other user's PC. What's more, using the shared application, one user can create or manipulate a text, audio, video, or graphic file on a remote PC or on her own. So, if one user has Word, but the other doesn't, the "Word-less" user can open the word processor, create a document, and then save it to either PC.

In addition to sharing applications or activating Remote Assistance (see tip 4), Messenger adds two-way audio and video sharing. WinXP users equipped with Web cams can videoconference each other, and a new

Audio And Video Tuning Wizard can configure a microphone to exchange voice messages. Users also can share freehand drawings and other graphics through a feature known as a Whiteboard. For more information, see "Windows Messenger" on page 50.

But strangely enough, the muscled-up Windows Messenger does not work with NetMeeting, Microsoft's existing conferencing software. And unlike other WinXP features, you can't use Windows Messenger or My Pictures (which provides photo-printing services through preferred vendors) without first creating a Microsoft Passport account, which is a free proof-of-identity scheme Microsoft uses to verify your identity for Hotmail, online chat accounts, and e-commerce.

The first five times you connect to the Web, WinXP pesters you to sign up, after which it gives up, but you can still sign up at any time. Although you don't have to surrender much personal information to get a Passport account, critics claim that just by getting one, you're agreeing to filling your inbox with dozens of e-mail sales pitches from Microsoft and its partners.

6 Advanced Auto-Play. Not exactly a new feature, AutoPlay was introduced in Win95 and enhanced in WinMe. Back when Win95 hit the marketplace, many considered a feature that automatically launched CDs and CD-ROM titles when loaded into a drive as groundbreaking. So what's new now? Plenty! WinXP's AutoPlay has morphed into a media ombudsman. Microsoft expanded its powers so that it can sniff out any media type and recognize everything from a blank CD-R to a digital camera.

Once noted, AutoPlay automatically displays a window on-screen for the appropriate associated program, such as a DVD player, editing application, or media player. Tell AutoPlay what you want, such as a digital editing program, and WinXP loads it for you. You can tie different media to different programs so that WinXP automatically knows, for example, to load CD burning software when it "notices" a blank CD-R in the drive.

To bypass AutoPlay, press the SHIFT key on your keyboard as you insert a CD, and continue to press the key down until the drive's light goes out. For more information, see "Windows Media Player" on page 46.

7 Network Connection Repair. WinXP's new Network And Internet Connections, a revamped category in the Control Panel, intelligently warehouses all network settings and configurations under one roof. Streamlined wizards quickly configure Internet and local network settings, and you don't need to know any specifics about IP (Internet Protocol) addresses or command line utilities.

When there's a connection problem, for example, and you're thrown offline or a network driver has been inexplicably disabled, the Network And Internet Connections tool makes it a snap to repair. Open the Control Panel, click Network And Internet Connections, click the Network Connections icon and a System Folder appears with detailed information about every Internet connection for your PC.

Each connection appears divided into categories: Broadband, Dial-Up, LAN [local-area network], or High-Speed Internet. And each connection appears with a note about its status: Connected, Disconnected, Enabled, and Disabled. So, for example, you could right-click the disabled network driver, select Repair, and WinXP will automatically reconfigure the driver. Other choices let you Enable, Disable, or get the Status of any configuration.

AutoPlay can sniff out any media type, recognizing everything from a blank CD-R (CD-recordable) to a digital camera.

8 My Pictures. Digital camera users will rave about the way WinXP works with cameras, scanners, and pictures. A New Scanner And Camera Wizard instantly installs and configures hardware. The OS automatically customizes all graphics folders and warehouses everything under a convenient My Pictures folder.

Open Windows Explorer by right-clicking the Start button and selecting Explore, and then click My Pictures (if you don't see it, open the My Documents directory tree). Instead of guessing what's inside every folder, look in the right pane where you'll see tiny graphics called thumbnails.

My Pictures offers several new benefits to Windows XP users, including the way in which it displays thumbnails.

If you open the My Pictures folder from the Start menu, WinXP provides a smorgasbord of options to view, copy, and print each graphic. For example, under the Picture Tasks list in the left pane, you can click View As A Slide Show to see selected pictures one by one in full-screen mode. Once activated, the dynamic task-based interface changes, giving you controls to advance, rewind, and stop the show.

Filmstrip, another option, lets you select a picture from a selection running along the bottom of the screen. The selected picture displays as a much larger image. The Filmstrip view lets you view the larger image in greater detail and make minor editing changes to the image such as rotating and resizing. To see this option in action, select Filmstrip from the View menu.

My Pictures also includes direct links to your camera and scanner, improved file-manipulation features such as compression, and the ability to let you copy images to a CD or upload them to your Web site. There's also a link to send digital camera images to a photo store, although you'll need to subscribe to Microsoft Passport to use this feature.

9 PowerToys. And, of course, what would a release of a new Windows product be without PowerToys, the pint-sized applications that add new capabilities to the OS (http://www.microsoft.com/windowsxp/pro/downloads/powertoys)?
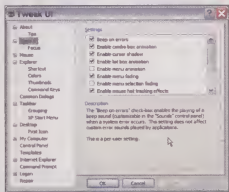
The ultimate PowerToy is Tweak UI, an all-in-one Windows configuration tool. With it, you can quickly configure various user interface effects, such as menu fading, error beeping,

cursor shadows, and thumbnail-image quality. While many of these controls are accessible in WinXP, Tweak UI allows for more fine-tuning. For example, settings can adjust mouse speed and sensitivity, as well as control what programs and icons appear on the Taskbar, WinXP Start menu, and Desktop. Plus, other handy Tweak UI controls can disable balloon pop-up windows and customize background colors of the toolbars in both Internet Explorer and Windows Explorer.

Two separate utilities, CD Slide Show Generator and HTML Slide Show Wizard, both generate a moving picture display of digital photos or other images. The CD version does so by integrating into WinXP's CD Recording Wizard to display a slide show of images burned onto a CD; the HTML (Hypertext Markup Language) version does so by generating a Web-based slide show that you can upload to your Web site.

Another toy, Image Resizer, uses a familiar right-click option to resize a picture or group of pictures, without changing the originals.

Tweak UI, an all-in-one Windows configuration tool and part of the PowerToys package, easily configures various user interface effects, such as menu fading, error beeping, and cursor shadows.

Less useful is a "task switcher," called the Alt-Tab-Replacement tool. With this tool, you can press the ALT-TAB keys on your keyboard to switch between running applications and see the programs' icons and a thumbnail image of the open page. Unfortunately, generating and displaying images takes a few seconds, which actually slows down the task-switching process. Where this PowerToy comes in handy, however, is when multiple sessions of the same program are running and working on different files. Here, the thumbnail display helps you keep track of exactly what files are being worked on.

10 Future Features. Not only is WinXP loaded with features for hardware and software available today, but Microsoft's Myrick says it also includes support for innovations of tomorrow. You may never use or even see any of these features, but WinXP is "locked and loaded" in case you do.

For example, WinXP's Network Wizard can automatically and painlessly configure a regular dial-up or broadband connection without any fuss. Plus, it supports network bridging, which is a still-in-its-infancy process that connects different networking standards on a single PC. For example, Ethernet is the standard for connecting computers to a LAN and is used on most high-speed broadband connections.

Wi-Fi, a new 802.11b wireless broadband standard, is gaining popularity and expected to make its way into the home market because of the ease in which it lets users connect a notebook to a land-base broadband connection, and without any wires. WinXP already supports both standards and can detect and configure many associated interface cards.

WinXP also includes support for USB 2.0, the next-generation peripheral connection for PCs. The new USB 2.0 is 40 times faster than USB 1.1, sending data at 480Mbps (megabits per second) vs. 11Mbps. Not only will USB 2.0-compliant products be easier to install, but the new standard is expected to eliminate and reduce bandwidth bottlenecks caused when too many devices share a single port connection. USB 2.0 products are expected to be released next year. And even though you'll need to buy and install new USB 2.0 cards to take advantage of this new advancement, WinXP is ready for the revolution.

■ **More XPectations.** Bottom line: WinXP is the best OS Microsoft has ever released. "The more you use and become familiar with each component, the more you'll appreciate WinXP's many diverse features," Myrick says.

For more assistance, dive into the Help And Support Center, ask questions, go to a Windows newsgroup, or browse the various Microsoft WinXP Web pages: WinXP Home Edition (http://www.microsoft.com/windowsxp/home), WinXP Professional (http://www.microsoft.com/windowsxp/pro), as well as WinXP Expert Zone (http://www.microsoft.com/windowsxp/expertzone). **[LS]**

by Michael Cahlin

room to burn

Get organized, and take your files with you wherever you go. Burn all your data, video, photography, MP3s, vinyl, cassettes and whatever else you've got to CD with Easy CD Creator® 5 Platinum, from Roxio. The best selling CD burning software in the world. You can even create your own personalized jewel cases for each disc. Hit roxio.com to find out how. Mac users check out Toast® 5.

Now Windows® XP compatible.

You're On The Clock

The New Time Synchronization Feature

The Windows OS (operating system) has always boasted a built-in clock, and Microsoft has occasionally taken steps to improve it. For example, the company's engineers made sure the clock was integrated into the Windows 95 Taskbar rather than floating on top of the Desktop as it was in Windows 3.x. They also added automatic updating for daylight-saving time, saving millions of Windows users the annoying task of resetting their PC clocks after the semiannual time changes.

The addition of a synchronization feature in Windows XP represents another significant change to the OS' timepiece. You'll still find the clock in its default position on the right side of the Taskbar, but now when you double-click it to open the Date And Time Properties dialog box, you have the option of synchronizing the clock to one of two international time servers (computers on a network that provide time information upon request). The synchronization is instantaneous and automatic; all you do is click a button.

The time synchronization feature provides a real benefit to users by ensuring that the time posted on-screen is always correct. Every clock is bound to become inaccurate over time as the slightest discrepancies—even something as minor as one lost second per hour—are magnified with the passing of each day, week, and month. The new feature catches these inaccuracies before they become noticeable.

■ **Do You Have The Time?** Using the time synchronization feature couldn't be easier. The first step is to make sure you have a live connection to the Internet. Next, you need to access the Date And Time Properties dialog box. You can do so either by double-clicking the clock on the Taskbar or by clicking the Date And Time icon in the Control Panel. Then, choose the Internet Time tab in the resulting dialog box.

The synchronization feature is set as active by default, so you should see a tiny check mark located next to the Automatically Synchronize With An Internet Time Server checkbox at the top of the Internet Time tab. A Server field directly below this indicates which time server will synchronize the time. The default selection is Microsoft's own "time.windows.com" server. You also have the option of using the "time.nist.gov" server, which the National Institute of Standards and Technology maintains. We found the "time.nist.gov" server to be much faster than the "time.windows.com" server, but it really doesn't matter which one you choose because both display the same time.

After selecting a server, click the Update Now button. The synchronization could happen instantaneously or you may have to wait a few seconds, depending on network traffic and the

Configure the time synchronization feature from the Internet Time tab in the Date And Time Properties dialog box. Take note of the next scheduled synchronization, located near the bottom of the dialog box, and make sure your PC is connected to the Internet at that time.

speed of your Internet connection. In either case, the dialog box will eventually display a message indicating the time was successfully synchronized with the selected server. The message also will post the date and time of the synchronization. Click the OK button to accept the changes.

(NOTE: If the update takes an extraordinarily long time to complete or fails altogether, the time server is probably busy. Try back later to complete the process.)

Exactly one week from the minute the clock was last updated, the time synchronization feature will automatically contact the selected server and update the time again. The synchronization procedure will repeat itself at the same time every week. In order for the automated synchronization to work, however, you must make sure the computer is turned on and its Internet connection is active.

The process should work smoothly in most situations, but there are a few known trouble spots. For example, most firewalls prevent Windows from accessing the time server. You can't get around this if the firewall is part of your corporate network. But if the problem is due to a personal firewall on your standalone machine, simply replace the retail product with the Internet Connection Firewall that comes built into WinXP.

Another problem you may run into is a synchronization failure that occurs because your computer's date is incorrect. In order for the time server to work properly, the computer's date must be correct. If your synchronization attempt fails, fix the date setting and then try again.

■ **Out Of Tempo.** Of course, you have the option of turning off the time synchronization feature. To do so, simply deselect the Automatically Synchronize With An Internet Time Server checkbox and click OK to save your change.

Who would want to disable such a nifty feature? Well, users who do not maintain an Internet connection are certainly not in any position to use it. Mobile computer users and dial-up users who rarely connect to the Internet also should consider disabling this feature. Instead, they can use the manual update option to synchronize their PC clocks.

Finally, networked users should ask the administrator if a network time server automatically synchronizes their clocks. If so, these users should disable WinXP's automatic synchronization feature, as well. **LS**
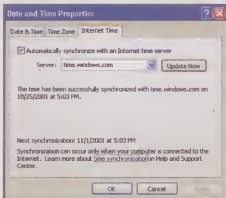
by Jeff Dodd

Security Overview

WinXP Bundles With More Protection For Users & Data

When the hype surrounding Windows XP began garnering heavy media rotation last spring, much of the emphasis was on security. Microsoft promised a secure OS (operating system) from top to bottom, for both corporate and home use. Naturally, the need for security had grown substantially in recent years as attacks on systems increased and continue to threaten our computing freedom, and this new, seemingly impenetrable OS was good news.

As beta testing for WinXP continued into the summer, a report by computer security expert Steve Gibson warned that WinXP would be a hotbed for DDoS (Distributed Denial of Service) attacks due to the OS' support for "raw sockets." Although Windows 2000 also has raw **sockets** (software objects that connect an application to a network protocol), Gibson claimed that widespread home use of WinXP would cause an explosion of DDoS attacks, which gained notoriety through attacks on major Web sites including Yahoo! and Amazon.com. Microsoft quickly rebuked Gibson's theory, stating that the inclusion of raw sockets wasn't a blunder, and security measures included in WinXP will protect consumers from such attacks.

Since then, WinXP has been released, the raw socket controversy has long subsided, and a rash of DDoS attacks has yet to materialize. All indications point to a very secure OS that has learned from the mistakes of its Win2000, WinNT, and Win9x elders. Still, if you're using WinXP, you should know how to take advantage of its security features, and at the same time, understand how to safely use other system tools.

■ **Personalized User Accounts.** WinXP lets users of your computer use separate logon screens to prevent unauthorized access to files and information. While this feature boosts the OS' visual appeal through customization, it's also an effective security measure. When you implement different user profiles, you can set security limits however you want them for different users, and these profiles will go into effect when the users log on.

user accounts without closing programs. Fast User Switching is handy when another user needs quick access to your computer, but you'd rather not close all your open programs and reboot Windows.

Although the option to use personalized user accounts is a nifty addition to Windows, it's not quite as secure as the classic Windows logon prompt, which requires a user to type his user account name to gain access to the Windows GUI (graphical user interface). To enable the classic logon, you can simply turn off the Welcome screen in the Select Logon And Logon Options window. If you decide to use personalized user accounts, visit ThemeXP (http://www.theme xp.org) to browse a wide selection of user-made logon screens that are available as free downloads.

■ **Internet Explorer 6.0 & Outlook Express 6.0.** Microsoft's latest version of IE (Internet Explorer), included with WinXP, boosts privacy and security beyond previous iterations of the browsing software. Depending on the level of security you set, IE will determine whether the Web sites you visit adhere to privacy standards set by the W3C (World Wide Web Consortium) via its P3P (Platform for Privacy Preferences). P3P compares sites' privacy policies to the privacy preferences you've set and determines whether to disclose personal information to the sites. This process is executed within the confines of your HTTP (Hypertext Transfer Protocol) connection, and for the most part, it's unobtrusive. But if you've set your privacy preferences too high, you may have trouble accessing the sites you want to visit.

When you access the security settings in IE 6.0 (by opening the Tools menu and clicking Internet Options, Security), you'll be able to modify IE's behavior in how it deals with ActiveX controls, downloads, scripts, Java applets, and more. You can also modify these settings for different zones (for Internet, intranet, trusted sites, and restricted sites). An icon that appears at the bottom of the IE window represents these zones. For instance, if you enter a site that could potentially damage your computer or data, you'll see the Restricted Site icon in the IE window. You can add sites to these zones as deemed necessary.

When you click the Privacy tab in the Internet Options dialog box, you can set the privacy settings for the Internet zone, which controls the behavior of cookies. You have

If you're the only user of your computer, you'll likely be better off not using the logon screen, as disabling it will speed the boot process. But if several users access your computer, you should use this feature to ensure that the users are able to see and modify only the files they are authorized to use.

To enable (or disable) the Welcome screen, you must log on as an administrator or a user with administrator privileges. To check, click Start, Control Panel, and User Accounts. Find the account you're logged on as; if you're not logged on as an administrator (or don't have administrator privileges), you can create an administrator account in this window. This window is also where you can select the logon screen options.

First, click Change The Way Users Log On Or Off. From the Select Logon And Logon Options window, you can enable the Welcome screen by clicking Use The Welcome Screen. You can also enable the Use Fast User Switching option here, which lets you switch

the options of blocking all cookies from being stored on your computer, refusing third-party cookies, and more. Again, if your setting is too high, you may not be able to access sites you typically visit. A safe setting here that should allow you to access most sites is Medium High. However, if you want to spend more time customizing your cookie behavior, the sky's the limit because you can determine a cookie policy for any individual site. IE also allows the use of certificates, which verify the identity of a person or the security of a Web site. In addition, Microsoft's Authenticode technology verifies the identity of downloaded programs.

Outlook Express 6.0 includes boosted security, as well. By default, Outlook Express 6.0 uses the Restricted Sites Zone setting instead of the Internet Zone. The Internet Zone, which allows active content (such as ActiveX controls and scripts) to run, was used in Outlook Express 5.0 and 5.5.

The Restricted Sites Zone setting prevents certain actions within e-mail, and if you're used to running wild with URLs (uniform resource locators) and attachments within your HTML (Hypertext Markup Language)-formatted e-mail, you may find this setting too restraining. However, the intention is to prevent malicious activity; by curtailing the content from the start, it tightens security. Whether you're willing to trade your e-mail freedom for enhanced security is up to you, of course. You can modify these settings in Outlook Express 6.0 by clicking Options from its Tools menu, choosing the Security tab, and selecting your preference.

■ **Internet Connection Firewall.** New to the Windows platform is a software-based firewall that blocks intruders attempting to probe your computer. Similar personal
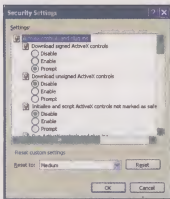
Internet Explorer 6.0's security settings let you control the behavior of ActiveX controls, Java applets, scripts, and more.

The Internet Connection Firewall provides a healthy dose of protection and is simple to configure.

firewalls, such as Network ICE's BlackICE Defender ($39.95; http://www.networkice.com/products) and Zone Labs' ZoneAlarm ($19.95; http://www.zonelabs.com/products/za), have been widely used by home users to protect their broadband connections.
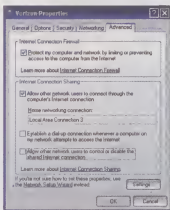
While all connections to the Internet are open to possible attack, broadband connections are particularly unsafe because they're typically connected continuously while your computer is on. If you've ever used one of these programs, you've likely seen the high hacker-like activity that exists each and every day on the Internet. While much of this activity consists of harmless probes to see if you have a particular computer "port" open, you still must protect your computer from more malicious attacks.

WinXP's ICF (Internet Connection Firewall) uses active packet filtering to control your computer's broadband connection. This means that it opens ports for Internet activity only as long as necessary to complete the requested action.

Although the thought of a firewall might conjure up visions of a configuration that's hours long, ICF is extremely easy to configure, and it runs silently. In fact, long-time users of BlackICE Defender or ZoneAlarm might be worried about the stealthy nature of ICF because you never know you're being probed, unless you physically dig up the log file and see what's been happening (compared to BlackICE Defender's and ZoneAlarm's constant alerts). But because the majority of this activity consists of simple annoyances, ICF's silence tends to be a welcome trait. ICF is so unobtrusive that it's even worth the effort for dial-up modem users.

How effective is ICF? ICF appears to be a very effective software firewall. We ran

several online security tests (which probe your computer's ports for any security holes), and ICF passed them all with flying colors. According to the tests, WinXP essentially renders your computer invisible on the Internet. This doesn't mean that you can't be hacked, but it does mean you can be connected to the Internet with a healthy dose of confidence. So if you are connected to the Internet, there's no reason not to use ICF, and if you're partial to another software firewall, give ICF a shot and see if you appreciate its unobtrusiveness.

To activate ICF, click Start, Control Panel, Network And Internet Connections, and Network Connections. Right-click your Internet connection, then click Properties. Choose the Advanced tab, and then click the checkbox under Internet Connection Firewall. If you use the Internet Connection Wizard, you'll be asked whether you'd like to use ICF.

■ **Shared Folders.** WinXP uses a shared folder architecture that lets users share documents across separate user profiles and home networks. Shared Documents, Shared Pictures, and Shared Music are configured as public folders, whereas My Documents, My Pictures, and My Music are private. This environment helps to boost security by defining default folders for sharing, plus it eliminates much of the administrative work if you wanted to obtain a similar environment. If you did try to emulate such an environment, you'd have to be very familiar with the proper permissions to effectively lock down the data that needs to be kept private.

If you've formatted your drive in the NTFS (WinNT file system) format (vs. the FAT32 format, which is a 32-bit version of the file allocation table) when you installed WinXP (or it may have already been in NTFS format, if you upgraded from WinNT or Win2000), you can lock folders. This option is a wonderful security feature for any home environment, particularly if you have sensitive data that needs to be kept from unauthorized eyes. If your drive is NTFS-formatted, you can explore folder-sharing functions by right-clicking any folder, selecting Properties, and choosing the Sharing tab.

■ **Automatic Updates.** To keep users abreast of the latest security and system updates, WinXP includes a feature called Automatic Updates. This tool can be set to

automatically detect, download, and install updates as they become available. Obviously, this feature is invaluable for keeping your system secure, especially if you don't have the time or discipline to manually search for updates.

We recommend that you let WinXP automatically detect updates for you, and then you'll have the option of immediately downloading and installing the updates or installing them later. To browse which options are available for Automatic Updates, right-click My Computer, select Properties, and choose the Automatic Updates tab.

■ **Potential Security Threats.** Despite its increased security and additional benefits, WinXP also has some potential problems that users need to know about.

Remote Assistance. With the introduction of Remote Assistance, WinXP delivers both a wonderful support tool and a frightening potential threat for security breaches. Remote Assistance gives users the ability to allow complete access to their computers for the purpose of obtaining help or education from a more knowledgeable user. This process occurs via a novice e-mailing or instant messaging an invitation to an expert, and the expert accepting the invitation and subsequently connecting directly to the novice's computer.

Obviously, the temptation for crackers to utilize this tool for malicious means is enormous. After all, the ultimate goal of crackers is often to obtain complete (or "root") access to systems, and Remote Assistance can deliver that access. However, Microsoft has implemented a number of security measures to try to thwart rogue-like use of the tool. For instance, the novice can set a password in the invitation and designate an expiration date. Also, the entire process is guided by prompts that require the novice to accept each step.

Cracker tools already exist that allow remote access to systems, although chances are you've never been attacked with one. But Remote Assistance brings this ability into the mainstream, so it's possible more attempts to breach systems via this tool and similar programs will surface in the future. In any case, use all the security measures that Microsoft provides to their fullest. For more information about safely configuring this WinXP feature, see "Remote Assistance" on page 57 in this issue.

Remote Desktop. Bundled with WinXP Professional, the Remote Desktop utility lets

you access a Windows session that is running on your computer when actually you're located at another computer.

For instance, you can have full access to your work computer while on your home computer, including access to files, programs, and network resources. Although
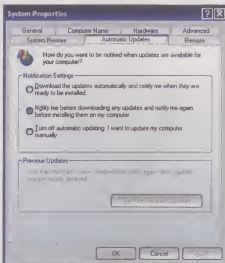
Using Windows XP's Automatic Updates helps to keep your system secure by automatically notifying you of new security patches.
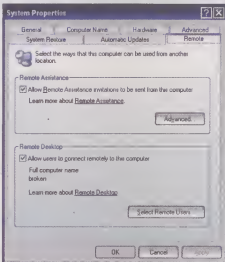
Remote Assistance and Remote Desktop are useful additions to Windows, but they also introduce potential security dangers.

Microsoft has implemented security measures that help keep out unauthorized users, potential does exist for security breaches. As with Remote Assistance, if you're using Remote Desktop, be sure to use all the security measures provided to ensure a safe connection. After all, access to your company's network via your computer by someone *other*

than you wouldn't be a good scenario, would it?

IE and Outlook Express. Despite Microsoft's attempts at securing IE, it's still open to attack, as shown by updates soon after WinXP's release. A patch released on Nov. 8, 2001, for example, addresses a vulnerability that could allow a malicious user to create a URL that allows a Web site to gain unauthorized access to cookies stored on your computer. These cookies could then be manipulated to expose sensitive personal information.

But even though IE and Outlook Express continue to show weaknesses in security, they've boosted your ability to secure your configuration. Naturally, we all want total freedom in browsing and e-mailing, along with total security, but the two aren't quite compatible at this time (and may never be). With this in mind, you need to choose a comfortable security setting in these programs that lets you achieve what you want and need to online, while still protecting yourself.

■ **The Bottom Line.** While WinXP has made significant strides in OS security, the fact remains that any OS can be compromised by a malicious user. This is particularly evident when new features are added to an OS. For instance, Remote Assistance and Remote Desktop are convenient utilities, but they could also prove strikingly convenient for crackers. Nonetheless, Microsoft hasn't ignored the threat that these features pose, and it has implemented wise security measures to thwart most security breaches.

WinXP *can* be a very secure OS, but it's only as secure as you make it. Using the Internet Connection Firewall, Automatic Updates, and strong privacy settings helps to create a fortress-like system that still allows you enough freedom to enjoy unobtrusive computer use. And if you're on a home network or share your computer with others, take advantage of WinXP's shared folder and folder privacy environment—it's simple to configure, and all users of your computer(s) will appreciate it. Above all, use common sense when configuring all aspects of your OS, as there's always someone, somewhere, looking to compromise a poorly configured system. **LS**

by Christian Perry

Get Online
How To Connect To The Internet

Connecting to the Internet with a Windows-based computer was not always an easy task. Despite the colorful icons, step-by-step wizards, and other helpful tools provided by previous versions of Windows, many users still experienced problems when trying to configure a simple Internet connection on their PC. With its abundant online hooks, Windows XP may finally alleviate these problems.

Thanks to a set of nearly automated connectivity features, WinXP makes it easier than ever to get online quickly. WinXP does offer a number of Internet-related options and settings that you should know about, however, and the following guide can help you make the most of these.

■ **Choose Your Weapon.** With the rapidly spreading availability of broadband Internet access, it is no longer a given that most users will connect to the Internet using an analog modem. For this reason, WinXP has built-in support for both dial-up modems and "always-on" broadband connections, such as DSL (Digital Subscriber Line) and cable modems. Establishing your computer's Internet connection will vary depending upon the type of access method you use.

As with most options in WinXP, the first step in configuring an Internet connection is the Start button. Click Start and then select Control Panel to bring up the basic menu of WinXP configuration options. From this menu, select Network and Internet Connections and then select Network Connections from the bottom of the page. This will open the Network Connections window, which serves as our jumping-off point for the rest of the discussion.

■ **Begin Anew.** If you already have an Internet connection configured on your computer, an icon for that connection will appear in the window, along with a brief description of that connection. Also, you can use the Network Connections window to configure a small office or home network. To find out more information on Networking, please

refer to "No Hammer, No Worries," which begins on page 87.

To set up a new Internet connection, click Create A New Connection, the first option under the Network Tasks heading in the left pane. This will launch the New Connection Wizard. Click Next to begin using the wizard.

Off to see the wizard. The first step of the Network Connection Wizard is to choose the type of connection you need to establish. Because we are focusing on Internet access here, you will want to select Connect To The Internet and click Next to continue.

The next page of the wizard, labeled Getting Ready, asks the very important question, How Do You Want To Connect To The Internet? The first option, Choose From A List Of Internet Service Providers (ISPs), lets you browse a list of ISPs that have included their software on the WinXP CD-ROM. These include companies such as AT&T, America Online, and Microsoft's own MSN. If you choose this option, you will launch the software installation and setup process for

your chosen ISP, and the wizard will walk you through the rest of the steps required to connect to the Internet using that service.

You can also choose a similar option, labeled Use The CD I Got From My ISP, which will (oddly enough) prompt you to insert a CD-ROM from your ISP. This option should also launch an installation and setup process for the software used by your chosen Internet service.
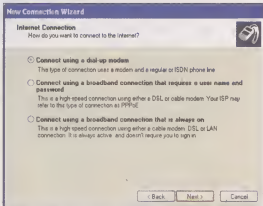
The system can't detect everything. One of first things you need to tell Windows XP about your Internet connection is whether it is dial-up or broadband.

Most of the time, users with **broadband connections** *will not need to do anything special to connect to the Internet using WinXP.*

Distinct difference. The difference between these two choices is that the first is ideal for users who need to set up a new Internet access account with an ISP. The latter option is often helpful for users who already have an account with the ISP but are either setting up that account on a new computer or have recently upgraded to WinXP and need to reconfigure their old account under the new OS (operating system). For both options, click Next to begin the process.

■ **Manual Labor.** If neither of these options suits you, and you wish to manually configure your own Internet access account, choose the middle option marked Set Up My Connection Manually and click Next. This will take us to the next step in the wizard.

If you need to set up dial-up modem access to the Internet, choose the first option on the Internet Connection screen (Connect Using A Dial-Up Modem) and click Next. This will take you through a series of data entry screens. The first asks you to name the Internet connection. WinXP asks you for the ISP name, but this can actually be any name you like as it is only used to identify the Internet connection and shortcuts to it for your own purposes. Once you have entered a name, click Next.

The digits. The wizard then asks you for a phone number. This is the access number your modem must dial in order to connect to your ISP. If you do not have this number handy, refer to your ISP's printed material or contact your ISP by phone to ask for the access number in your area. Once you have the information entered in the Phone Number field, click Next to continue.

The final step is to enter the username and password for your Internet connection. Enter the username in the first field and your password in the next two fields (the second one is used to confirm that you typed the password error-free). Before clicking Next to end the wizard, you can also configure three additional options.

Dial-up extras. The first extra option available through the New Connection Wizard is

labeled Use This Account Name And Password When Anyone Connects To The Internet From This Computer. This option really only applies when a computer is used by multiple members of a family, roommates, and other folks sharing the same living or work space.

If you click this option, you will permit all users of your computer to access the Internet through the connection you just created. If you do not check this option, those users will simply have to configure their own access methods.

The second dial-up option is marked Make This The Default Internet Connection. Again,

Found in the Control Panel under Network And Internet Connections, the Network Connections menu fills all your Internet connectivity needs.

this option won't matter to everyone, as it is only important for users with multiple Internet connections on their computer. If you have more than one connection configured on your machine, this option tells WinXP that the connection you are currently configuring is the primary connectivity method and the one to be used by default any time the computer needs to access the Internet.

The final option, Turn On Internet Connection Firewall Protection For This Connection, is a new feature in WinXP. It enables WinXP's built-in firewall feature for your new Internet connection. This option is active by default, and it basically protects your computer from other computers and users who try to access your machine over the Internet. It is generally a very good idea

to leave this option checked for every Internet connection you configure. Once you have clicked the options you wish to enable or disable, click Next.
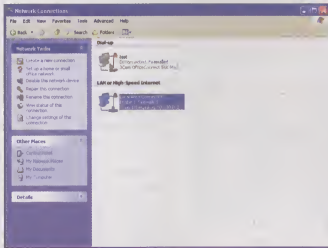
Shortcut? On the final screen of the New Connection Wizard, you will see a brief summary of the Internet connection you just configured. You will also see a checkbox marked Add A Shortcut To This Connection To My Desktop. This box is empty by default; check it if you wish to have an icon for your new connection appear on your WinXP Desktop. Once you have decided whether or not to create a

shortcut, click Finish to complete the New Connection wizard. Your new Internet connection is now configured and ready to go.

■ **Broadband.** Most of the time, users with broadband connections will not need to do anything special to connect to the Internet using WinXP. This is because the OS handles all of the basic connectivity issues automatically and "behind the scenes."

If you need to troubleshoot your configuration, however, or you simply need to configure your broadband account name and password, select one of the latter two options on the Internet Connection screen of the New Connection Wizard.

The last option on the menu, marked Connect Using A Broadband Connection That Is Always On, can help you troubleshoot a DSL or cable connection. Select this option, click Next and you'll see a brief message explaining that your connection should already be working properly. If it is not, click the Broadband Connections link to open the WinXP Help And Support Center window, which will take you directly to the topic of To Repair A LAN Or High-Speed Internet Connection. Follow the steps of this guide to troubleshoot your Internet connection.

If you need to enter a username and password for your broadband connection, choose the second option on the Internet Connection menu, labeled Connect Using A Broadband Connection That Requires A User Name And
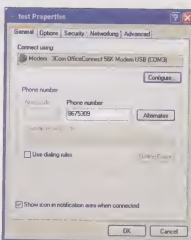
Password. Select this and click Next to bring up a series of data entry screens. The first asks you to name your ISP (for example, AT&T or RoadRunner). The next window will ask for your username and password, which will then be used to log you onto your ISP whenever you need to connect.

You will also find three more options at the bottom of the window (these are the same as we described in the "dial-up users" section). Once you have configured your extra options, click Next.

This final screen will run down the information you entered for the broadband connection and ask whether you want a WinXP Desktop icon for your new Internet Connection (Add A Shortcut To This Connection To My Desktop). If you do, check this box. If not, leave it blank. Once you've made up your mind, click Finish to complete the wizard and the Internet connection setup process.

Your Internet connection's Properties menu provides an array of additional settings that can be adjusted.
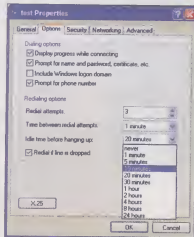
Under the Options tab, you can configure the way in which Windows XP deals with busy signals and disconnects.

■ **But Wait, There's More!** For many users, the preceding steps are sufficient to create a fully workable Internet connection that requires no further tweaking. Power users and others who wish to fine-tune their connections, however, may do so by fiddling with a number of additional Internet settings. In order to view these extra options, you need to go back to the WinXP Network Connections menu (click Start and choose Control Panel, click Network And Internet Connections, and then click Network Connections).

For each Internet connection you have created on your computer, you will see an icon on the Network Connections menu. Each icon will be further identified by the name you entered for the connection during the New

Connection Wizard. To see and change additional settings for a particular Internet connection, click the icon for that connection to highlight it, then click Change Settings Of This Connection from the Network Tasks menu at left.

Property manager. The properties for your Internet connection appear in a five-tabbed menu. The first tab is marked General and provides a handful of very basic options. The first of these is the hardware your computer will use to make the Internet connection. If you are configuring a dial-up connection, this will be a modem. If you have a broadband connection, this will typically be a network interface card.

If the name of the device appears incorrectly in the Connect Using field, click the Configure button just below it to bring up the properties of that particular hardware device. If you have a dial-up modem, you should now see a Modem Configuration window. If you have a broadband connection, you should see a Hardware Properties window for your specific network card. Note that changing the settings on either of these windows may lead to serious problems with your Internet connectivity or your system. You should only make changes if you are an advanced user. Broadband users may alternatively click the Troubleshoot button at the bottom of the hardware properties' main window (marked General). This will launch the Generic Hardware Device Troubleshooter, which will walk you through possible hardware problems and suggest ways in which to correct them.

Alternate numbers. If you have a dial-up connection and would like to configure it to dial a second access number if your primary number is busy, you can do so through the Internet connection properties menu. Select the

General tab and click the button labeled Alternates. This brings up the Alternate Phone Numbers window, which shows a list of phone numbers for your Internet connection (if this is a new connection, you should see only one number here). To add a secondary number, click the Add button at the bottom of the window and enter the phone number on the subsequent menu. You can also enter a comment for this number by typing a note in the field at the bottom of the window.

For example, you might want to label this number "Alternate" or "Secondary." When you have finished, click OK to return to the Alternate Phone Numbers window. At the bottom of the window, you should see two checkboxes. The first, marked If Number Fails Try Next Number, tells WinXP to try each number on your list in succession if it encounters a busy signal or other error when attempting to connect. This option is active by default and is required for WinXP to automatically use alternate phone numbers.

The second option, Move Successful Number To Top Of List, tells WinXP to shift the order of phone numbers based on its success in dialing them. In other words, if WinXP tries to dial the Internet and receives a busy signal on the primary number but connects on the secondary, it will reorder the numbers so that the next time you connect your secondary phone number will be used as your primary (and vice versa).

Rules, rules, rules. If you have any special dialing requirements, such as first dialing a code to access an outside line, you can set up all of this information through the Dialing Rules menu. From the General tab of the Internet connection properties window, click the Use Dialing Rules box and then click the Dialing Rules button. This takes you to the Phone And Modem Options menu, which shows a list of dialing locations.

For most users, there will be only one location on this list. Mobile users, however, may need to configure several dialing locations. Either way, highlight the location you need to configure and click the Edit button to open the Edit Location menu. Here, you can enter a name for your dialing location (in the field marked Location Name) and select the geographic area from which you will be dialing (use the drop-down menu marked Country/Region) as well as your local area code (enter this in the Area Code box).

For more complex dialing needs, use the code fields listed under the Dialing Rules heading. This section of the menu provides

By default, WinXP generates **status messages** *for every stage of the Internet connection process.*

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four special dialing options: To Access An Outside Line For Local Calls, To Access An Outside Line For Long-Distance Calls, Use This Carrier Code To Make Long-Distance Calls, and Use This Carrier Code To Make International Calls.

Each option has a corresponding data-entry field next to it. Simply enter the necessary code (such as 9 for an outside line) in the appropriate field and click Apply to implement the change.
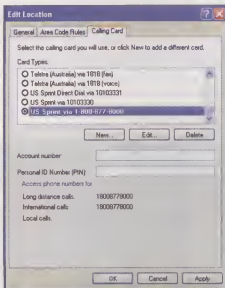
Under the Dialing Rules section of the General tab, you will also see an option for disabling the Call Waiting feature on your telephone service. If you wish to use this option, check the box and select your phone company's method for disabling Call Waiting from the drop-down menu to the right. If your company uses a different code than the three listed here, simply enter it in the field. Once you have made your choice, click Apply.

Your last option is the type of dialing method WinXP will use to access your Internet connection. By default, this is set to Tone, which is the current telephone system standard. If you are accessing an older system, however, you may need to use Pulse dialing. To do so, check the Pulse option and click Apply.

■ **Calling Cards.** Do you need to use a calling card in order to dial your Internet connection? No problem; simply bring up the properties for your Internet connection in the Network Connections window and click Change Settings Of This Connection).

From the General tab, click the Use Dialing Rules checkbox and click the Dialing Rules button. Click the location from which you would like to use a calling card and click Edit. Now click the Calling Card tab to enter your calling card account information.

WinXP provides you a list of basic cards at the top of this window. Choose one of these if it matches your card or click New to add calling card information for a card not already listed. Complete the process by entering your calling card account number and PIN code, then click OK or Apply to implement the changes.

If you need to use a calling card with your Internet connection, you can enter that information under the Edit Location section of the Dialing Rules menu.

■ **Stay Informed.** By default, WinXP generates status messages for every stage of the Internet connection process. When you dial your ISP, for example, you may see messages about dialing, logging in, and verifying your password. If for some reason you would like to disable these messages, you can do so through the Internet connection's properties menu. Click the Options tab of this menu and uncheck the box marked Display Progress While Connecting.

From the same menu, you can also enable/disable the options that tell WinXP whether to prompt you for your username and password and your ISP's phone number (these are marked Prompt For Name And Password, Certificate, Etc. and Prompt For Phone Number, respectively).

You can enter an alternate access number for your Internet connection, enabling Windows XP to try other numbers if it encounters errors or busy signals.

From the same menu, you can also configure your Internet connection redial options. Under the Redialing Options heading, you can set a number of times for WinXP to redial busy numbers by adjusting the number in the field marked Redial Attempts.

Just below that, you can adjust the amount of time for WinXP to wait between redial attempts (Time Between Redial Attempts). You can also tell WinXP to disconnect inactive connections by adjusting the time in the field marked Idle Time Before Hanging Up.

If you set this to 10 minutes, for example, your Internet connection will be terminated after 10 minutes of inactivity, which can possibly save you some money on your phone bill if you accidentally leave your computer connected to a long-distance access number for too long.

Finally, you can tell WinXP whether or not to redial dropped connections. That is, if you are connected to the Internet and for some reason get disconnected, you can have the OS automatically attempt to reconnect. To enable this feature, simply click the box marked Redial If A Line Is Dropped.

■ **Completely Connected.** Much of the information covered here goes above and beyond what most users will ever need when attempting to connect to the Internet. After all, WinXP does a much better job of automating and streamlining Internet access than earlier versions of Windows. In case you do have special connectivity needs or you just like to tinker with your connection settings, however, rest assured that WinXP can accommodate. **LS**

by Michael E. Ryan

Internet Connection Firewall

New Feature Works To Protect Your PC

It doesn't take a certified computer nerd to realize that computer security has become an important topic in today's world. E-mail viruses, Web site defacement, and talk of cyberwar can be heard in everyday conversation, and vendors have rushed to market hardware and software to protect your computer. With the launch of Windows XP, Microsoft has entered the fray with a built-in firewall program that offers respectable protection at no additional cost. We'll take a look at what you should expect out of a firewall, how Microsoft's ICF (Internet Connection Firewall) compares to alternatives, and how to use ICF to your advantage.

■ **Packets Everywhere.** To understand how to use a firewall, you'll need to take a moment to understand how firewalls work, what they can protect you against, and what is better left to other devices.

The first concept you need to understand is that all the traffic that crosses the Internet utilizes a concept known as packet switching. When your browser requests the home page of http://www.smartcomputing .com, all the text, graphics, and sound files are broken into discrete packets that are sent to your computer. Once they arrive, your computer determines which program (your browser in this case) requested them and hands them off to be processed. The end result is a nicely formatted HTML (Hypertext Markup Language) document.

The reason the files are broken down into smaller chunks is to allow for different connection types and speeds across the Internet. These packets may also travel different paths to your computer and arrive out of order. Imagine sending each page of "Moby Dick" through the mail from different post offices

throughout the country. The fact that these packets eventually arrive, and that your computer can make sense of them, is one of the marvels of the Internet. The downside to this system is that if someone maliciously

sends you packets that your computer doesn't know how to deal with, the sender might be able to take control of your computer and wreak havoc.

■ **Good Firewalls Make Good Neighbors.** A firewall intended for personal use is generally a simple device, either hardware or software based. Using a ruleset you manage, the firewall decides whether to let a packet out to the Internet or grant passage into your computer.

Even though firewalls can be incredibly complex and some are expensive, most computer users can adequately secure their system for a reasonable price. In the case of WinXP, the Internet Connection Firewall is included for free. All you'll need to do is use it is configure it to your liking.

■ **Your Bodyguard.** When crackers decide to compromise a computer system, they generally don't know much about your computer. Some may be bent on mischief, while others may just be curious about what's on your system. A hacker simply knows your IP (Internet Protocol) address and, using some software tools, looks for clues to the type of OS (operating system) your computer runs. At the same time, the miscreant searches for vulnerabilities in any software, such as a Web server you may be running. Once they find this, they have the keys to your computer.

In denial. Computer systems with high-speed Internet connections are prized targets as they can be used in conducting distributed DoS (Denial of Service) attacks.

In a DoS attack, a hacker coordinates a group of compromised computers to attack a vulnerability in a targeted system. This vulnerability denies legitimate users access to the system, hence the name. Overwhelmed by the attack, most systems have no choice but to shut down.

With "always-on" connections, hackers have plenty of time to compromise your system, and broadband connections can send out significant numbers of packets as part of a DoS attack. Other hackers may want to use your system as a springboard to attack another system, hiding their tracks and shifting attention in your direction.

Here's where a firewall comes into play. Using a set of rules, your firewall keeps track of requests your computer has sent out and diligently waits for a response. If intruders try to sneak into your system, your firewall will block them as they try to gain entry. A good firewall will also notify you of the event so you can take further action.

The Achilles' heel. One important fact to remember is that firewalls are simplistic bodyguards. If you tell them to let people view your Web site, and the Web server program you're running has a vulnerability, the firewall will be powerless to protect you. An important function of a good firewall is that it filters traffic in both directions, or bidirectionally. Many viruses and malicious programs operate by utilizing a back door. This lets the program initiate a

connection from your computer to a malicious computer. Programs such as these, commonly referred to as Trojan horses, spread through e-mail, Web sites, and poorly protected software.

Unfortunately, WinXP's ICF provides no protection for you in these cases. Also, firewalls are useless against e-mail viruses. So, be sure to include a strong virus protection program in your arsenal.

■ **Hardware Firewalls.** Hardware firewalls for personal use are typically bundled into a broadband router or gateway. These devices act as portals to the Internet and can do a thorough job for most home users. Configured through a Web page, they let you set specific, granular rules for multiple computers on your network. If you are setting up a home network, these devices should prove invaluable, though they do cost approximately $150.

One advantage hardware firewalls have over their software brethren is performance. A software-based firewall uses up some of the system resources of the computer on which it is running, and this effect will increase if you have multiple computers using the same computer gateway.

Managing a single hardware firewall is usually easier than trying to install software firewalls on each of your computers in a home network. When you add up the cost of multiple software firewalls, using a hardware firewall can be more affordable.

■ **Software Firewalls.** One problem facing hardware firewalls is their lack of portability. If you have a notebook computer and travel frequently, you'll need to acquire a software firewall for your road trips. Additionally, if you want to fine-tune each of your computer's firewall rulesets, you may find that some hardware firewalls don't have the flexibility you'll require.

There are many excellent and affordable software firewalls that do an excellent job of protecting your computer. Among these are the Sygate Personal Firewall (http://www.sygate.com), Zone-Alarm (http://www.zonealarm.com), and BlackICE Defender (http://www.networkice.com). If you are planning on a hardware firewall, two leading contenders are DLink's DI701 (http://www.dlink.com/products/broadband/di701) and Linksys' BEFSR41 (http://www.linksys.com).

■ **ICF.** Not willing to let other companies keep a foothold in a burgeoning market,

Microsoft has integrated a rudimentary firewall into both the Home and Professional editions of WinXP. Although this may draw cries from competitors and consumer advocate groups alike, the ICF is at best an average firewall. Historically, Microsoft has produced competitive software by the third version, so Sygate and other software developers need to keep a firm eye on what the consumer wants.

■ **How ICF Works.** As with many other firewall programs, ICF is a stateful firewall program. **Stateful** means that as a program sends out a request for an Internet service, such as a Web page, ICF keeps track of this request and anticipates an answer. This is often referred to as keeping state. When a packet arrives in response to such a request, ICF looks for an entry in its state table, and if the packet matches the request, it is forwarded on through to the application.

Stateful firewalls are important for two reasons. The first is that without a stateful ruleset the firewall would have to allow in any packet coming from a Web server. This would open a gaping hole in your computer's security. The second reason stateful firewalls are important is that the ruleset itself can be much simpler and easier to comprehend. The more complex the ruleset is, the greater chance for error and subsequent security breaches.

Inbound connections. Using state for outbound connections works fine, but stateful rulesets break down when you are offering a Web service such as a Web site or mail server. In this case, inbound rules are needed to let traffic connect to your Web and mail server. ICF lends a helping hand with inbound connections, as it has several predefined Services that make managing your rules much easier.
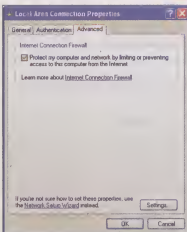
Microsoft tucked away Internet Connection Firewall on the Advanced tab of Internet Connection Properties.
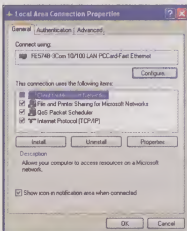
Because the feature is disabled by default, you need to enable ICF for each one of your Internet connections.

■ **Configure ICF.** Putting ICF to use is easier than you might think. Microsoft has made a conscious decision to follow the principle of KISS (keep it simple, stupid). We'll configure ICF for the most common firewall scenario.

Single host configuration. In this example, our intention is to protect a single computer while still allowing Remote Desktop access to our friendly support guru. Our first step is to navigate to the configuration window. Our example is for LAN (local-area network), but if you are using a dial-up connection, the steps will be the same.

Click Start, Control Panel, Network And Internet Connections, and Network Connections. Here you'll have a list of all your network connections whether they are dial-up, DSL (Digital Subscriber Line), or cable modem connections. In our example, we have a single DSL connection that appears as a LAN or high-speed Internet connection.

Set the connection. There are two ways to perform the next step. First highlight the local-area connection "pipe" icon and select Change Settings Of This Connection under Network Tasks at left. You can also right-click the local-area connection and choose Properties. Either method opens a separate window, in our case named Local-Area Connection Properties, with five tabs across the top. The tab we're interested in is labeled Advanced. Click the tab, and you'll be greeted with a checkbox.

The ICF. This checkbox activates the firewall, implementing the default settings of allowing everything outbound and denying any traffic inbound that wasn't requested.

If you want to customize your rules, press the Settings button at the bottom of the

window. This will open a second configuration window labeled Advanced Settings. Here you will find set rules for a variety of Web services. Additionally, log settings and ICMP (Internet Control Message Protocol) settings can be configured in this window.

In our example, we want to let a support technician access our system through WinXP's Remote Desktop; mark the checkbox next to Remote Desktop. After marking the checkbox, a window will open, and you'll need to specify the host providing the Remote Desktop service.

Safeguard. As a precaution, we also want to log any unsuccessful connection attempts for further review. By clicking the Security Logging tab, we have the option of Log Dropped (blocked) Packets or Log Successful Connections. We chose Log Dropped Packets and changed the location of the log file to our Desktop (C:\DOCUMENTS AND SETTINGS \CJACKSON\DESKTOP\lcf.log) for easy reading. The default log file size is 4MB, which should be adequate for our needs. If the log file grows too rapidly, we can always create additional log files.

ICMP. ICMP is responsible for managing and reporting the status of Internet connections. Lately, it has become fashionable among security specialists to turn off all ICMP responses, but there is no consensus on this. ICMP helps the Internet run more efficiently, and blocking ICMP responses can eventually cause problems that are beyond the scope of our article.

By default, ICMP responses are blocked by ICF. If you decide to allow ICMP responses, Microsoft has configured nine checkboxes with the most common requests. Highlighting each option results in a description of the rule at the bottom of the configuration window.

■ **How ICF Fares.**
After configuring ICF, we decided to test it using the Telnet and PING (Packet Internet Groper) programs included in most versions of Windows. This will test to see if ICMP packets are being dropped and if the Telnet service is being blocked. Additionally, there are

Enabling ICMP (Internet Control Message Protocol) responses helps networks to function more effectively.

many online security sites that provide testing, such as Gibson Research's Shields UP! at http://www.grc.com.

For our test we used a second workstation on the same LAN and our firewalled computer was given the IP address of 192.168.1.4. In a command prompt, we typed ping 192.168.1.4 and waited for five seconds. This generated four ICMP Echo Requests, which should have returned four corresponding replies. ICF successfully blocked these requests; we didn't see any response in our command prompt.

Our next test was using Telnet, a remote connection program. At the same command prompt, we entered telnet 192.168.1.4 and were greeted with Trying 192.168.1.4.... After 20 seconds of no response, we were pretty sure the connection wasn't going to be successful. This indicates that our attempt to Telnet was successfully blocked.

After configuring ICF, we decided to test it using both the Shields UP! program and a friendly Unix guru. Shields UP! is a free service that probes your computer from the Internet in a nondestructive fashion. In addition to the security evaluation service, Gibson Research provides some basic information on protecting your computer. Our Unix guru used a standard hacker tool, nmap, to scan our system for vulnerabilities.

Both tests showed no known vulnerabilities, though the Remote Desktop service was detected. ICF blocked all attempts to gain system information as well as attempts to gain control of the computer.

To see how ICF logged these probes, we opened the log file in Notepad. ICF had correctly logged the Shields UP! scan as well as the probe from nmap. Our only complaint is that
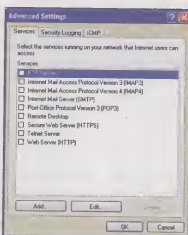
In Advanced Settings, specify what services those on the Internet have access to on your PC with ICF.

the log file is pretty spartan. Although it logs the IP address of the "intruder," it didn't specify much more than the port it probed.

Because networked computers have more than 65,000 ports, this wasn't very useful. Other firewall programs translate this into easy-to-remember service names and often provide links to definitions of the service. This omission is disappointing, as it leaves the user with few avenues for investigating the probe.

The important factor is that ICF does a robust job of blocking all ports by default. Our Unix expert reminded us that if we allowed traffic through to a Web server on our computer, a hacker wouldn't need to compromise our firewall. Instead, the hacker would only have to attack the Web server program directly. Also, if a vulnerability were to appear in Remote Desktop, letting that service run could endanger our computer.

■ **Missed Opportunities.** Critics are blaming Microsoft for a litany of security breaches, and Microsoft could do a better job of providing out-of-the-box security. The problem isn't that the software is difficult to write, as Microsoft has well-regarded programmers and software engineers.

What holds Microsoft back is that most consumers really don't want to be bothered with the details of configuring their computers to be safe. They mistakenly assumed that they were already being protected and only recently have they become aware of the dangers of the Internet.

Fortunately, as users have become more security-savvy, so has Microsoft. ICF is enabled by default when you create any network connection, and even though configuring it to your exact needs may not be something the novice user will find easy, you won't be left exposed to the less savory denizens of the Internet. **LS**
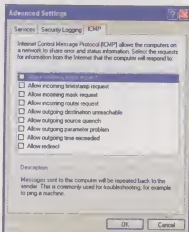
by Chris Jackson

No Hammer,
No Worries

How To Set Up A Home Network

You may be surprised by how easy it is to start a network from scratch or with existing computers. Windows XP is very intelligent about networking, and linking computers together is easier than ever. Before jumping into configuration and installation aspects of a network, however, we need to create the network first.

Before creating the network, first determine the primary purpose of your network. Many home offices just need a basic file- and printer-sharing network, which is the simplest type of network to create. Others, however, may want to run a Web server, e-mail servers, or database applications, which require significantly more hardware (servers) and security.

You also need to determine how and where you will run network cable, or if a wireless or phone-line home networking kit works better for you.

■ **Plan The Network.** First off, determine the type of network you need. There are two basic types of networks: peer-to-peer and client/server.

Peer-to-peer networks consist of several computers (called workstations) connected by a central hub. Each computer on the network acts as both a server (sharing resources such as files or printers) and a client (using shared resources). Small peer-to-peer networks are easy to set up and are generally the best for home networks where security, fault tolerance, and network administration are of minimal concern.

In a **client/server** network, servers are dedicated to specific tasks, such as printing, file sharing, handling e-mail, or hosting a Web site. These are called dedicated servers. Client/server networks offer much better security than peer-to-peer networks because they require users to authenticate themselves through logins and passwords. Dedicated servers also store files in a central location so backing up data is easier.

However, dedicated servers and the peripherals used to protect them against hardware failures and data loss (called "fault tolerance") are considerably more expensive than typical workstations.

Unless you plan on purchasing wireless networking equipment or a special network package that uses existing phone lines (both types of products are offered by 3Com [http://www .3com.com]), take time to plan your network cabling. Determine where each computer will be located so you can determine where you need to run cable.

Developing a cable plan helps determine optimal placement for the workstations and the hub (the hardware connecting the computers). Don't run cable where it can be frequently stepped on, run over by office chairs, or tripped over, and if you run cable through your walls or ceiling, you should use plenum-grade cable.

Plenum-grade network cable is a special type of cable run through the space above the ceiling in office buildings. It is more expensive than nonplenum-grade cable but doesn't give off poison gas in the event it catches fire (as standard, nonplenum-grade cable does). Plenum-grade cable is required in office buildings for cable that runs through ceiling space. In a small home, it certainly isn't required (by any enforceable law), but it's probably a good idea.

■ **Purchase Equipment.** If you are buying computers instead of networking existing ones, buy identically configured workstations with network cards installed, if possible. Keeping your hardware uniform makes updating drivers and other routine maintenance easier. Updating drivers, for example, is quicker because the drivers can be shared over the network and used to update every computer. This saves you time and hard drive space, as well, because you won't have to maintain as large a driver library. Additionally, in the event of a hardware failure on a workstation, you can borrow a temporary replacement from another system while awaiting a replacement part.

Even if the computers on your network are intended for very different tasks (such as high-end video-editing as opposed to Internet surfing), consider buying identical computers.

The extra cost of buying a more powerful computer than you need for a particular task can pay for itself in time saved on maintenance. An exception would be a dedicated server, which generally requires more computing horsepower, disk space, and fault-tolerance options (such as redundant power supplies and hot-swappable hard drives) to keep it

running at all times. If you plan to buy multiple servers, however, use the same rule: Keep them standard and purchase identical servers.

■ **Network Cards, Hubs & Cables.** The minimum requirement for WinXP is a 300MHz Pentium II-class machine. Any Pentium II-class computer with WinXP will support a PCI (Peripheral Component Interconnect) NIC (network interface card) so you'll be safe purchasing any PCI NIC. One example is 3Com's popular 10/100 Fast Etherlink PCI NICs.

Because networking technology has a slew of its own terms, specifications, and abbreviations, we've narrowed the most common terms down to cover the basic equipment for which you may be shopping.

Transfer rates. The speed at which a NIC transfers data is measured in megabits per second (Mbps). Most cards are capable of 10 or 100Mbps (usually both). Hubs are also rated in megabits per second. Some hubs are called switched hubs or switches; these offer increased bandwidth per connection (each port/connection uses 100Mbps) as opposed to regular hubs, which offer a "pool" of bandwidth (100Mbps total for all connections). Switches cost a little more than hubs and offer little benefit to most small networks.

Though smaller networks seldom tax a 10Mbps hub, it is wise to use all 100Mbps components. The cost difference between 10Mbps and 100Mbps parts is minimal, and it's always good to buy with future expansion in mind. If you have four computers you want to network, consider a 5-port or 8-port hub.

Internet connection. If you plan to share a DSL (Digital Subscriber Line) or cable modem connection for your network, you may want to go a step further and purchase a router. Routers are hubs with more built-in intelligence. For example, they can hide your internal network from the DSL or cable modem provider's network. One example of such a router is Belkin's (http://www.belkin.com) 4-Port Cable/DSL Router.

Network cable. Network cable comes in a bewildering array of specifications, but stick to CAT 5 (Category 5) network cable. It comes in two varieties: UTP (unshielded twisted-pair) and STP (shielded twisted-pair). Both are capable of 100Mbps transmission speed. STP, however, is shielded from EMI (electromagnetic interference), whereas UTP is not.
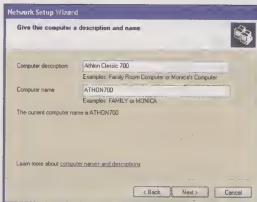
For your network, remember to keep computer names short, easy to remember, and easy to spell.
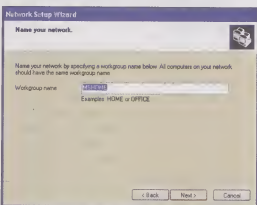
If you're into strict organization, workgroups can be used to organize your network but may not be necessary on small (less than six PCs) networks.

Signals from sources such as electric motors, power lines, or high-power radio signals cause EMI, which can corrupt data signals running through network cables. STP is best in high-noise/interference environments, but unless you plan to watch pro wrestling, vacuum, and microwave burritos in your office (all at the same time), STP is probably unnecessary.

All-in-one. If shopping for network components is too daunting, consider buying a pre-packaged home networking kit. Designed for home users, bundled kits have easy-to-follow documentation and automated installation programs designed to get you up and running quickly.

Buying a kit also takes a lot of guesswork out of buying individual components. For example, D-Link (http://www.dlink.com/products/kits/dfe910) offers the DFE 910 starter kit. It sells for $120 and includes two 10/100Mbps PCI NICs, a five-port 10/100Mbps switched hub, and two 20-foot CAT 5 UTP cables. With this kit (and two additional NICs), you can network up to four computers.

■ **Connect Everything.** Once you've acquired the pieces for your network, it's time to connect everything. On the complexity scale, it's somewhere between making toast and using a microwave.

Installation. Install a NIC in each computer, along with the appropriate WinXP drivers. Most, if not all, NICs manufactured within the last three years are PnP (Plug and Play) so WinXP should be able to detect the card and install drivers automatically. We recommend downloading the latest drivers from the manufacturer's Web site to ensure you have the most current drivers available. To install a hub, connect the AC adapter to the hub and plug the AC adapter into a wall outlet. Place the hub in a location central to the computers in your network.

Connection. Connect a CAT 5 cable from each computer's NIC to a port on the hub, but do not connect the cable to the port labeled Uplink. If you plan to share a high-speed DSL/cable connection, connect a CAT 5 cable from the hub's Uplink port to the DSL/cable modem. You may need to use a special type of CAT 5 cable called crossover cable, but check the documentation for your DSL/cable modem and your hub. Crossover cable resembles regular CAT 5 and can often be purchased wherever CAT 5 is sold.

On the front of the hub there should be a row of lights, each corresponding to a connection in the hub. Each light should glow green when the hub connects to a computer (and that computer is powered up). A light doesn't, make sure your cables are all connected securely. Otherwise, proceed to setting up the software side of the network.

■ **WinXP's Home Network Wizard.** If you purchased computers with WinXP installed, the network will practically set itself up once you connect the computers. All you need is to run the Network Setup Wizard.

If you didn't buy systems with WinXP or NICs installed, install your NIC (we used a 3Com 3C905TX-B Etherlink 10/100Mbps PCI NIC) and then boot your computer. WinXP should instantly recognize the NIC and install drivers for it automatically. If it does this, an information balloon notifies you that it has installed the drivers. Depending on the network card you choose, WinXP might prompt you for a driver CD if it doesn't already have the drivers.

After installing a NIC, connect a CAT 5 cable from the NIC to the hub. WinXP should pop up an information balloon, telling you that it has

found a new network device. Now you're ready to run the Network Setup Wizard.

Follow the wizard. Click Start, All Programs, Accessories, Communications, and the Network Setup Wizard. When the wizard starts, click Next until you get to the Internet Connection dialog box. WinXP presents three more options. Select the first if you have your computer connected to a hub that is, in turn, connected to your DSL/cable modem Internet connection. Selecting this option prompts WinXP to warn you that this is an "unsafe" option because it may leave your computer exposed to the Internet to potential hackers. (If you're sure this is the correct option, just click Next.)

Select the second option if the computer connects directly to the Internet (via dial-up, DSL, or cable modem). Select the third option if your computer is part of a network that doesn't have an Internet connection. Once you've made your selection, click Next to move on.

The next dialog box prompts you for a Computer Description and Name. We recommend naming your computer something short, such as Office1, Beatstick, or Godzilla. Choose a theme (such as "Lord of the Rings" character names) or keep it purely utilitarian, but generally the shorter (and easier to spell) the better. The description is optional, and it can be as long as you like. Click Next when you're done; this brings up the Workgroup dialog box.

Groupthink. The workgroup name is not vital; it can even be different for each computer if you wish. However, browsing computers in the network is easier if they all use the same workgroup name. Otherwise, you have to browse through My Network Places, then browse each workgroup to find the computer you're looking for. Workgroups are used to subdivide computers on your network.

For example, you could have several machines in the Accounting workgroup and several in the Legal workgroup. Computers on the same network in different workgroups can still communicate with each other and share resources. Click Next after you've entered a Workgroup name.

Finalize settings. WinXP asks if you're ready to Apply the network settings. If you want to change anything, click Back to make changes. Otherwise, click the Apply button. What WinXP does (transparent to you) is install the correct protocols and File/Printer sharing services to get the computer talking to your network. On our system, WinXP installed TCP/IP (Transmission Control Protocol/Internet Protocol), the client for Microsoft networks, and the File and Printer Sharing services (the three basic services for sharing resources on a Microsoft network).

After the wizard is done, the final dialog box asks if you wish to create a Setup Disk. If you choose Yes, Windows creates a diskette you can take to each machine on your network and run the Network Setup Wizard to install the same services so each machine can communicate. If you don't wish to make the diskette, click Finish. (If you have WinXP on every machine in your network, you don't really need the diskette. You can run the Network Setup Wizard on each computer.)

Change later. If you want to add or change network services and protocols manually, right-click the My Network Places icon on your Desktop and select properties. You should see an icon named Local Area Connection (Enabled). Right-click it and select Properties. You can add services and protocols by clicking the Install/Uninstall buttons. If you want or need to assign static IP Addresses or other advanced options, click to select the TCP/IP protocol and click the Properties button.

■ **Share, Customize & Map Files & Folders.** To share folders on your computer with other users on the network, right-click the folder you wish to share and select Sharing And Security. Select Share This Folder On The Network and uncheck Allow Network Users To Change My Files (unless you want others on the network to be able to delete or change files in the shared folder). If you'd like to personalize the folder, click the Customize tab to access additional options for shared (or non-shared) folders. None of these functions are essential, but you may find them useful (or at least fun). (NOTE: *The Customize tab is not available for the Shared Documents or My Documents folders or subfolders of these folders.*)

Install A Dedicated Print Server

Sharing a printer that is connected to a single computer is easy, but it has drawbacks. The main one is that the computer to which the printer is connected must be on for anyone to be able to print, whether it's actually in use or not. If the computer is in use, performance slows if multiple print jobs are sent by other PCs.

Additionally, if the person using the print server as a workstation has to reboot, any print jobs sent during the reboot period will go to cyber-limbo.

One way to circumvent this is by using a dedicated print server. This is essentially a workstation connected to your network with its only function being to share the printer. The downside to this method is that the server must be on all the time, or at least when you wish to print.

Another alternative is purchasing an external print server such as Hewlett-Packard's (http://www.hp.com) Jet Direct 170X External Print Server. Connect this little box to your printer via a parallel cable, then connect the JetDirect box to your network's hub.

Once connected, you can use Internet Explorer or the included JetAdmin software) on any computer in the network to configure the print server. If you give your printer an IP (Internet Protocol) address, you can map each Windows XP machine on your network to print directly to the printer via its IP address. This means you can print to the printer from any machine as long as the JetDirect box and printer have power. You don't need to have an extra machine acting as a server.

To map a printer to an IP address, click Start and select Printers And Faxes. In the left-hand column, click Add A Printer and click

Next. Select Local Printer and click Next. Select Create A New Port. Click the drop-down menu and select Standard TCP/IP Port. Then, click Next. This starts the Add Standard TCP/IP Printer Port Wizard. Click Next, enter the IP Address you assigned the printer (the port name will fill itself in as you type), click Next, and Finish. Finally, scroll through the Printer Manufacturers And Printer Models (or click Have Disk if you have a driver disk) to select the correct driver for your printer. Click Next. Type in a name for the printer if you wish to change it (we suggest a short name, such as HP4000), and click Yes to make this printer your default printer. Click Next, select Do Not Share This Printer, and click Next again. Finally, click Yes to print a test page, Next, and Finish. ☐

Perhaps the best feature of networking home computers is that it lets you

share devices.

The first option lets you specify a template for your shared folder. A template defines the default characteristics of how the folder is displayed when you browse it. For example, if you are sharing a folder of Word documents, you probably just want to view a concise list of file names. If you're sharing a folder of graphics files (clip art, for example), you might find the "Pictures" template more useful because it displays thumbnails of all the files.

If you'd like to change how your shared folder appears (perhaps to remind you of its contents), click the Choose Picture button and browse to a BMP (bitmap) file of your choice. If you'd like to change the icon for your shared folder, click the Change Icon button and select a new icon. Neither of these options is essential to sharing files, but they can be fun if nothing else. Once you've finished customizing your folder, click Apply.

If you wish to access a shared file or folder on another computer, double-click My Network Places (or click Start and select My Network Places), then click the Add Network Place link in the left-hand pane. Click Next at the first dialog box, then type the path to the resource using this format: \\<computer name>\<Share name>.

■ **Locate Network Resources.** If you want to map to a shared folder on another computer, open My Network Places and click the Add Network Place option in the left-hand pane. Click Next at the first screen. In the next dialog box you'll be presented with two choices: MSN Communities (Service Coming Soon) and Choose Another Network Location. Select Choose Another Network Location and click Next. Type the path to a shared folder using the UNC (Universal Naming Convention) format at : \\<computer name>\<Share name>.

For example, if you want to map to a shared folder named Gorillas on a computer named Primates, you would enter \\PRIMATES \GORILLAS. If you wanted to map to a folder inside the Gorillas folder named Silverbacks, you would type \\PRIMATES\GORILLAS \SILVERBACKS. If you are unsure of the computer or folder name, click the Browse button, then click the Entire Network icon. Browse to the computer and then the shared folder on that computer you wish to access.

You can also perform this by right-clicking My Computer and selecting Map Network Drive. This will map a drive letter to a particular resource. For example, you could map drive G: to \\PRIMATES\GORILLAS. You might want to map a drive letter to each folder you need to access regularly, such as mapping drive G: to \\PRIMATES\GORILLAS and drive H: to \\PRIMATES\GORILLAS\SILVERBACKS. It is generally most efficient to map drives in this fashion, rather than mapping to \\PRIMATES \GORILLAS and browsing to subfolders.
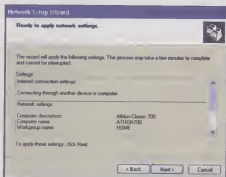
If you want to change the name or workgroup name for your computer, click Back. Otherwise, click Next to apply your network settings.
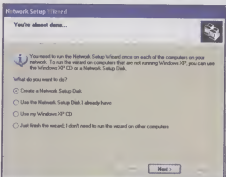
After you've applied all your settings, you can create a diskette to configure the remaining computers on the network.

■ **Share Printers.** To share a printer, click Start and select Printers And Faxes. If this option is unavailable to you from the Start menu, click Start, select Control Panel, then double-click the Printers and Faxes icon. Right-click the printer you wish to share and select Properties. Click the Sharing tab. Select Share This Printer and enter Share Name. Keep the

name short and easy to remember, such as HP4000 instead of Mike's HP Laserjet 4000. Click OK and the printer will be shared.

To connect to a shared printer, click Start, select Printers And Faxes, and open the Add Printer Wizard. Click Next. In the Local Or Network Printer dialog box, select A Network Printer Or Printer Attached To Another Computer. If you know the computer name and printer name, select Connect To This Printer and type in the Name field the path to the printer, using this UNC format: \\COMPUTER NAME\PRINTER NAME.

If you aren't sure of the exact path to the printer, select Browse For A Printer and click Next. Browse to the computer and printer to which you wish to print and click Next. If WinXP recognizes the printer and has the appropriate drivers, this is all you need to do. It will install the drivers automatically. If WinXP doesn't have the appropriate driver, it will inform you that "the server . . . does not have the correct driver . . ." Click OK and select the driver for the printer to which you are connecting. (You will probably need your printer's installation CD.)

Once you've mapped to the printer (and installed drivers as necessary), click Next. When prompted, click Yes if you want to use the printer as your default printer, click Next, and click Finish.

■ **Save Money, Improve Productivity & Have Fun, Too.** Perhaps the best feature of networking home computers is that it lets you share devices. It also lets you pool hard drive space and abolish "sneakernet," an ancient network that required users to walk from PC to PC with floppy diskettes to share files. And even though the focus of this article has been on practical home-office use, we cannot resist mentioning that networks are great for entertainment. Whether it's playing Dark Age Of Camelot on two computers sharing an Internet connection or blasting your buddies in a friendly bout of Unreal Tournament, networking PCs can add fun and functionality, and maybe even save you a buck in the process. [LS]

by P. Bryan Edge-Salois

Know Who Sees Your Info

Establish User Accounts To Monitor Access To Folders

Windows users have never had it so good. Windows XP sports a shiny new interface called Luna, the most radical facelift for the Windows lineage since Windows 95 entered the marketplace.

WinXP's enhancements run much deeper than just a pretty face, however. Microsoft has finally parted ways with the Win9x kernel in favor of the Windows NT/2000 kernel for its new OS (operating system). WinXP users will certainly notice the increased reliability and performance the new kernel brings to their computing experience.

One of WinXP's main benefits is the availability of the NTFS (NT File System). This file system, a mainstay of NT-powered personal computers and servers, features enhanced reliability and security. One of the principal security features in NTFS is the ability to set various levels of permissions for files and folders.

Before WinXP, only corporate users enjoyed the ability to customize file permissions and access rights as needed. The use of NTFS in WinXP changes all that.

We'll show you how to apply WinXP's file and folder security settings to customize security settings in your PC. Because WinXP lets you create multiple users, each family member can enjoy custom settings without cramping anyone else's style. Perhaps most importantly, users' access privileges can be customized as needed so Dad can rest easier knowing it's more difficult (but certainly not impossible) for Junior to commandeer the credit card number for an all-night online shopping spree.

■ **File Systems.** WinXP brings the NTFS into the consumer market for the first time. Before, consumers were limited to two choices for file systems in a Windows installation: FAT16 and FAT32. The principal differences between these file systems are in the hard drive size each can effectively handle. NTFS volumes can take advantage of large capacity hard drives more effectively than FAT16 or FAT32 and theoretically handle volumes as many as 256TB (terabytes; a trillion bytes).

NTFS volumes offer other advantages besides enhanced security, including automatic error correction, improved verification of files written to disk, and data logging for emergency recovery.

Anyone familiar with Win-NT and Win2000 can bear witness to the extreme flexibility these OSes provide when it comes to protecting files from prying eyes. Administrators can easily set file and folder permissions in Win2000 in myriad ways, depending on the degree of customizability needed. Until the arrival of WinXP, file level security for both local and network access was available only to the business market.

■ **Secure Your Stuff.** It is not rare for a typical household to share one or more computers among family members. In many cases, families use multiple computers and connect them using simple networks. Networking makes it possible for families to not only share resources, such as printers or scanners, but also to share the bandwidth supplied by high-speed cable or DSL (Digital Subscriber Line) Internet connections. Sharing maximizes the use of expensive resources but also introduces its share of security problems. For example, sharing a computer in a network may give the kids access to sensitive financial information.

The first step to establishing security in WinXP is the use of profiles. These user profiles can be set up for various levels of access, depending on who uses the PC. For example, if a guest needs to use your computer, you can have her use a limited-access Guest account that lets her use the PC's features but prevents her from accessing your personal files.

To set up a user account, click the Start button and select Control Panel. In Control Panel, click User Accounts. WinXP gives you the choices of Creating A New Account, Change An Account, or Change The Way Users Log On And Off. If you've created any accounts, they are displayed at the bottom of the dialog box and can be selected for modification by clicking them. WinXP lets you choose a colorful picture to represent an account so it is very easy to tell whose account you are working on.

■ **Create A New Account.** To create a new account, simply click Create A New Account and follow the system prompts. The first dialog box asks you to give the new account a name. Once you name the account, the system wants to know whether the new account is an administrator account or a limited account. Keep in mind that an administrator account has the greatest control of the computer and its Windows settings. Administrators can create and modify other user accounts, install and uninstall software, and change system settings at will. If you are serious about security, you will want to restrict the number of administrators with access to your system.

Users with limited accounts have less control over the PC and its settings. A limited account may not be able to install certain programs; moreover, WinXP warns you that using a limited account may prevent you from running software designed prior to Win2000 or WinXP. For example, if you log in as a limited account

user and attempt to install a program to the system NTFS volume, WinXP will not allow you to proceed with the install. If you want to prevent Junior from installing suspect shareware at will, set him up with a limited account.

Obviously, creating user accounts without implementing password protection defeats the purpose of having these accounts in the first place. Whenever you try to secure a folder under a user account that is not password-protected, WinXP warns you that the account does not have password protection and asks you to set up a password for the account.

When attempting to secure a folder with a user account that is not password-protected, Windows XP reminds you to create a password.

■ **Security Measures.** Both WinXP Home and Professional editions use a scheme called Simple File Sharing to implement security in a multiuser context. Simple File Sharing is always on in the Home edition but can be turned on and off in the Professional edition. In fact, WinXP Pro allows for the same type of file-level tuning of permissions and setup of user accounts as Win2000.

To take advantage of these advanced file security features in WinXP Pro, you must first disable Simple File Sharing. Right-click the Start button, select Explore, and select Folder Options in the Tools menu. Choose the View tab, go to the Advanced Settings area, and clear the Use Simple File Sharing (Recommended) checkbox.

Simple File Sharing lets you set permissions at the folder level. Unlike the file security implementation in Win2000 and WinNT, Simple File Sharing does not secure individual files. Also, the Simple File Sharing option only works for those folders that are contained in your user profile within the Documents And Settings folder. The folders residing under the user profile umbrella include Internet Explorer, My Documents, Send To, and Cookies.

User profiles contain the folders and files needed to personalize an account, such as Favorites, Desktop, Cookies, and My Documents.

To begin using Simple File Sharing, right-click the folder you wish to secure and select Sharing And Security. The resulting menu consists of two parts: Local Sharing And Security and Network Sharing And Security. To make a folder private for local users of your computer, check the box labeled Make This Folder Private.

By default, the checkboxes to share your files on the network and allow others to modify them are not checked. If you are running a small home network and wish to share these folders, check the box labeled Share This Folder On The Network.

If you want to go even further and allow others to modify files via the network, make sure the box labeled Allow Network Users To Change My Files is checked. If all boxes are checked, the folder in question is now wide open to both local and network users. Make sure the information contained in the folder is fit for public display.

Simple File Sharing settings are inherited, which means subfolders within folders marked private are also private. This makes it very easy to manage your sensitive data by storing all confidential files within a single folder that can then be marked private. Any folders you create within this initial folder will be marked private, as well. Keep in mind that any files you wish to make private should be stored within the My Documents hierarchy for Simple File Sharing to work.

■ **Partition Requirements.** Most importantly, remember that these security features will not work at all in volumes that are formatted as FAT16 and FAT32. If you chose to format your hard drive as a FAT16 or FAT32 volume during your WinXP installation, these features will not be available unless you convert the volume to NTFS. However, once you convert to NTFS, you can't go back to FAT32 or FAT 16 without reformatting the entire hard drive.

If you decide you want to convert your drive to NTFS, make sure you back up all the information on your hard drive. For more on how to back up information, see "Prepare For The Worst" on page 111. To convert your drive to NTFS, open the Command Prompt by clicking the Start button, pointing at All

Give those who use your PC their own accounts. To create an account or modify an existing one, click User Accounts in the Control Panel.

Programs, pointing at Accessories, and clicking Command Prompt. In the Command Prompt window, type convert *drive letter* /fs:ntfs. Therefore, if you wanted to convert your C: drive to NTFS, you would type convert C: /fs:ntfs.

■ **Small Lock & Key.** So, are there any chinks in XP's security armor? Well, security is only as strong as those implementing it, so the burden is on you. If you use your first name for your administrator account password, it's pretty clear that account will be breached sooner rather than later.

Also, other users, even those logged in with limited accounts, may be able to manipulate files stored outside of the folder structure (such as My Documents) within your user profile. If an unauthorized user attempts to open your user profile, WinXP simply denies access to the folder. So, a user logged in as a Guest cannot access folders in your user profile. However, if you forget to store an important document within the My Documents folder, that document can be accessed and manipulated by an unauthorized user.

Also, keep in mind that if you've upgraded from Win98 or WinMe, you may have two My Documents folders on your system: the legacy My Documents folder from Win98 or WinMe (stored under C:\My Documents) and the new WinXP My Documents folder (stored under C:\DOCUMENTS AND SETTINGS*user profile folder*\MY DOCUMENTS).

However, it's evident Microsoft has done its homework and enabled even home users to implement strong security for shared resources. Used properly, the security features in WinXP's Simple File Sharing scheme should be sufficient to secure your shared resources in the home. **LS**

by Sixto Ortiz Jr.

Graphic Connection

Use The Scanner & Camera Wizard

Flatbed scanners and digital cameras both used to be prohibitively expensive, available to those with either a lot of money, professional needs, or both. Now, entry-level scanners and digital cameras cost less than a hundred bucks, and Windows XP makes them easier than ever to use. Many imaging devices can be used within minutes of simply plugging them in and connecting them to a computer running WinXP.

By comparison, Windows 95/98 required several steps and more user input to get the same results. If you installed a USB (Universal Serial Bus) PnP (Plug-and-Play) scanner, for example, Win9x computers detected the device and ran an installation wizard. The wizard, in turn, requires you to click through multiple dialog boxes to install drivers and typically requires you to reboot the computer at the end of the process.

Granted, clicking through dialog boxes and inserting CDs isn't too difficult, but even though Win9x did an admirable job of making the process easy, it still involved too many steps. The more steps in a process, the more opportunity for something to go wrong.

WinXP builds upon Win9x's wizards, making them smarter and faster when installing new imaging devices. Installing new imaging devices isn't the wizard's only function, however. The wizard also simplifies using scanners and cameras by providing a streamlined, intuitive interface that makes transferring pictures to your computer easy. Once pictures are transferred from a scanner or camera to your computer, you can view and edit them, create a photo album and burn it to CD, or e-mail pictures to friends and family.

■ **The Scanner And Camera Wizard.** Depending on the device you are installing, you may never even see WinXP's Scanner And Camera Wizard go to work. WinXP recognizes many imaging devices as soon as they connect to the computer. If WinXP already has drivers for a newly installed scanner or camera, it works behind the scenes, installing the appropriate drivers and making the device immediately available for use. With PnP devices, rebooting is unnecessary and the installation process takes less than 30 seconds.

For example, installing a Hewlett-Packard (http://www.hp.com) Scanjet 4300CSE flatbed scanner on a WinXP computer is as easy as connecting the scanner's power supply to a wall outlet and then connecting the scanner to a USB port. WinXP detects the scanner as soon as it is connected and installs the drivers automatically, displaying an information balloon that says that the scanner has been installed and is ready for use.

Catch it on the install. If you already have imaging devices connected to a computer while installing WinXP, it can detect such devices and install support for them automatically. Our USB Logitech (http://www.logitech .com) QuickCam Pro 3000 Webcam was ready for use upon first booting our newly installed WinXP Professional machine.

Of course, WinXP's ability to seamlessly install and recognize imaging hardware hinges on driver support. Newly installed devices, for which it doesn't have drivers, will take a few extra steps to install. Because WinXP is still relatively new, we recommend that you download the latest drivers for any imaging devices you own from the manufacturer's Web site. Installing older drivers may cause problems under WinXP.

Meet the wizard. If you have the latest drivers and need to install an imaging device manually (such as an older scanner), run WinXP's Scanner And Camera Installation Wizard. Be aware that some older hardware (such as a hand-scanner requiring a proprietary controller card) is not supported by WinXP, and it is unlikely you'll be able to locate drivers for hardware that old.

In the unlikely event the Scanner And Camera Installation Wizard cannot install your device or no WinXP drivers are available for it, you may be better off buying a newer scanner or camera.

Otherwise, to manually install an imaging device in WinXP, run the Scanner And Camera Installation Wizard. Click the Start button, Control Panel, Printers And Other Hardware, and Scanners & Cameras.

Any devices already installed on the system appear in the window. To add a new device, click Add An Imaging Device in the left-hand pane. This will start Windows' Scanner And Camera Installation Wizard. Make sure you have your driver CD in your CD-ROM drive. (Alternately, because WinXP is so new, you may want to download the latest drivers for your device from the manufacturer's Web site.)

Double-clicking the icon opens a new window and presents additional options, depending on the device.

If you decide that you want to trim down your image, you can crop out extra information right from the wizard.

After you click Preview, the wizard shows you a thumbnail of your photo and lets you make adjustments to the image before the image actually gets scanned and saved to your PC.

How to use the wizard. Click Next to bypass the Welcome dialog box. The next dialog box asks what type of scanner or camera you wish to install. The left-hand window displays a list of manufacturers, and the right-hand window displays a list of devices for each manufacturer. For example, if you wish to install an HP PhotoSmart C200 Digital Camera, highlight Hewlett-Packard in the left window, and then double-click the Hewlett-Packard PhotoSmart C200 Digital Camera in the right window to advance to the next dialog box.

The wizard now prompts you to connect your device to the appropriate port, such as a USB, parallel, or COM (Communications) port. You may also select Automatic Port Detection, which tells WinXP to scan your system and detect the connection automatically. If you know the port to which your device is connected, select it and click Next. Otherwise, select Automatic Port Detection and click Next.

The final dialog box asks you to type in a name for your device. Either leave the default name or type in a new one (something short and intuitive is usually a good idea), click Next, and then click Finish. WinXP now copies the necessary driver files (be sure you have your driver CD ready in case WinXP prompts you for it), placing an icon for the device in the Scanners and Cameras Control Panel. An icon is also available when you double-click My Computer.

■ **Use The Wizard To Get Pictures.**
Once your imaging hardware is installed, access it by double-clicking My Computer. An icon for the device should be displayed below the system's drives. Double-clicking the icon opens a new window and presents you with additional options, depending on the device.

About a camera. If the device is a camera, double-clicking it opens a new window. Three options are displayed in the left-hand pane: Get Pictures From Camera, Show Camera Properties, and Delete All Pictures On Camera. If the device is a movie camera (such as Logitech's Quickcam Pro 3000), WinXP opens a small window displaying your video in real-time. You can even take a still shot by clicking the Take A New Picture option in the left pane. For standard digital cameras, you can download pictures by selecting Get Pictures From Camera or delete the pictures on your camera by selecting Delete All Pictures On Camera.

The scanners. If the device is a scanner, scanning a picture (or other document) is as easy as placing the document in the scanner, right-clicking the scanner icon, and selecting Get Picture Using Scanner Wizard. This starts the Scanner And Camera Wizard. To scan a document directly into an application (such as Word 2002), double-click the scanner icon instead.

WinXP offers the option of scanning the document using the Scanner And Camera Wizard or scanning it into an application of your choice. If you choose to have your document scanned into an application, WinXP opens that application and completes the process within that application. Otherwise, select the Scanner And Camera Wizard and click OK.

Click Next to bypass the wizard's Welcome dialog box. You will see four radio buttons: Color Picture, Grayscale Picture, Black And White Picture or Text, and Custom. Select the most appropriate option for your document. If you want to make minor adjustments, select Custom and click the Custom Settings button to go to an Advanced Properties dialog box.

Make a file. Use the Advanced Properties dialog box to manually change the dpi (dots per inch), brightness, and contrast settings for your scan. Under Picture Type, click the arrow to view a drop-down list and select the appropriate document type (Color Picture, Grayscale Picture, or Black and White Picture or Text).

Probably the most important adjustment you can make in the Advanced Properties box is the dpi setting. Dpi is the resolution at which the document is scanned. The higher the resolution, the better the quality of the scan, but remember that higher resolution scans lead to larger file sizes. A color image scanned at the highest resolution can easily consume several megabytes of hard drive space.

After selecting the picture type and customizing the image, click the Preview button to view a thumbnail of the document. If you'd like to crop the document, there are two buttons located to the right of the Preview button. Click the Show Entire Image button (the right-hand button). Four corner anchors (small green boxes) appear in the Preview pane. Drag the corner anchors to resize the box around the section of the

picture you want. If you want the cropped area to fill an entire page, click the Enlarge To Fit button (to the immediate left of the Show Entire Image button) to view the cropped picture as it appears on a full page. Click Next to go to the Picture Name and Destination dialog box.

There are three areas numbered 1 through 3 from top to bottom. Type a name for your picture file (such as **My picture**) in the first field. Select the type of graphics file you want to save your file as in the second drop-down list. To finish, type in the folder where you'd like to save your file, or browse to it by clicking the Browse button. Click Next when finished.

Pictures and the Web. WinXP now starts the final scan of the document and shows a dialog box asking what you'd like to do with your pictures: Publish Them To A Web Site, Order Prints Of These Pictures From A Photo Printing Web Site, or Nothing. If you're finished scanning pictures, select Nothing, click Next, and then Finish.

Selecting Publish To A Web Site offers two choices: MSN Communities (which was not available as of this writing) and X-Drive Plus. X-Drive Plus is an information sharing service that works via the Internet. You must set up either a Microsoft Passport login and password or an X-Drive login and password to use this service. Using X-Drive basically lets you share files with other users over the Internet.

Select Order Prints Of These Pictures From A Photo Printing Web Site and click Next if you would like to order prints of your pictures. Select the photographs you want to print by clicking the checkbox next to the pictures you want. Click Next. Now select the Photo Printing Service (Print@FujiColor, Shutterfly, or Kodak Print Services [which was also unavailable as of this writing]) and click Next. You will need to log in to the selected service to continue.

■ **Additional Options.** Additional Scanner and Camera options can be accessed by right-clicking the icon for the device and selecting Properties. The options available are dependent on the device.
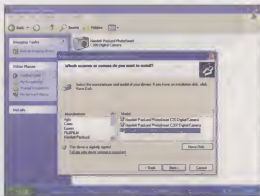
The Scanner And Camera Wizard recognizes many different brands and models of Image devices.
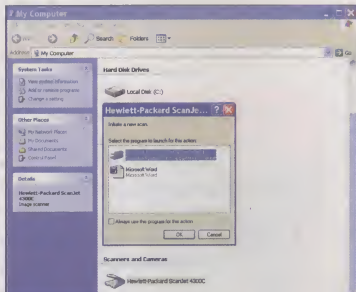
Upon activation, the Printer And Scanner Wizard will ask you what application you would like to use for scanning your document.

For example, selecting Properties for a Scanner produces a dialog box with three tabs: General, Events, and Color Management.

Go to the General tab for basic information about your scanner, such as the name and model. Click the Test Scanner Button to ensure your scanner is working properly.

Use the Events tab to assign applications to open when the button located on the scanner is pressed to initiate a scan. The default is the Camera And Scanner Wizard. Click the arrow to view the drop-down list and select a different application, such as Microsoft Word. The next time you scan a document by pressing the scan button on your scanner, WinXP will automatically open Microsoft Word and scan your document into it. Not all devices will have an Events tab. For example, selecting Properties for a Logitech

Quickcam 3000 Pro produces a Properties page with only the General and Color Management tabs.

Click the Color Management tab to load Color Profiles for a device. Color Profiles adjust the hues, brightness, contrast, and qualities of colors for a picture. (Using Color Profiles is a lot like playing with the tint, brightness, and contrast controls on a TV set.)

■ **It Can't Do Everything.** The Scanner And Camera Wizard does an excellent job of making imaging hardware easy to install. It also provides a simple, intuitive, and consistent interface for using imaging devices. However, WinXP's wizard is only designed to provide a rudimentary level of functionality for such devices.

For example, transferring pictures to your computer, snapping a picture, or deleting pictures stored on a camera are all basic functions WinXP offers. If you want to edit pictures transferred to your computer, you can use Microsoft Paint, but you will probably be better off with more sophisticated software, such as Adobe's Photoshop (http://www.adobe.com). Similarly, if you need to perform sophisticated video editing or scan text documents into a word processor, you will need additional software.

Most devices are bundled with software to perform these tasks. However, because WinXP is so new, check the device or software manufacturer's Web site for updates to their software. Most software bundled with a scanner or camera, even if purchased recently, may require an update to work properly with WinXP.

Aside from this minor potential problem, WinXP makes installing (and using) scanners and cameras quick and painless, especially for new users. If you run WinXP and have been holding off buying a fancy scanner, digital camera, or digital movie camera, now might be a good time to go shopping. The wizard should have you up and running in time to e-mail holiday pictures to the relatives (and you can delete those pictures with your thumb in the foreground). LS

by P. Bryan Edge-Salois

Catch The Wave?

Put New Windows & Windows Classic Up To Your Taste Test

Microsoft chose a good array of colors, themes, and backgrounds to include in Windows XP's new look. WinXP's default background image is a picture of a rich, green, grassy hill beneath a gleaming blue sky, accented with a bright blue and green color scheme in the Taskbar. Microsoft not only overhauled, stabilized, and unified the Windows OS (operating system), but it did so with style and taste.

Of course, everyone may not like the bubbly new look of WinXP. Some are hesitant to change after years of relative consistency in the Windows user interface, and others just don't like their computers looking cute. Fortunately, WinXP is the most customizable Windows OS ever, and if you don't like the new look, it's easy to do away with it entirely and make it look and feel like your old Windows.

■ **Same As The Old Boss.** Reverting back to the Classic look can help neophytes adapt to the new OS more quickly because it has the interface to which they are accustomed.

As with previous versions of Windows, profiles can be tied to specific users. A user profile lets one person log in to a WinXP computer and use the new look, and another user can log in on that same machine and use the old look without interfering with one another.

To banish WinXP's new look, right-click your Desktop and select Properties. Click the Appearance Tab, and you'll see three drop-down lists: Windows And Buttons, Color Scheme, and Font Size. Click the Windows And Buttons list and select Windows Classic Style. This makes WinXP resemble Windows 98.

Once you've done this, customize your WinXP colors by clicking the Color Scheme list. You'll see familiar schemes such as Eggplant, Lilac, and Wheat. You'll also see Windows Classic and Windows Standard if you just want plain old Windows colors and fonts. Finally, click the Font Size list and select the size of text you prefer.

Clicking the Effects and Advanced buttons lets you further customize your display. The Effects button gives you a chance to select Large Icons or enable graphical features, such

as Show Windows Contents While Dragging and Show Shadows Under Menus, in addition to a few other fun-to-play-with graphical flourishes. Click the Advanced button to customize the colors used for Windows' menu bar, buttons, and fonts. These are the same features you would normally find in Win9x/NT 4.0 by right-clicking the Desktop, selecting Properties, and selecting the Appearance tab.

If you used Win98 Themes, click the Themes tab. You'll find all your old favorites, including Mystery, Jungle, and Underwater, with WinXP.

■ **Where Are My Icons?** If you upgrade to WinXP, it will retain the My Computer, My Network Places, My Documents, Recycle Bin, and Internet Explorer icons on your Desktop.
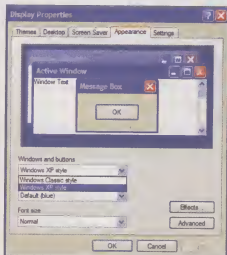
If you don't care much for the rounded corners Windows XP uses for its windows, go into the Display Properties dialog box and revert to the right-angled Classic view.

If you install a full version of WinXP on a new machine, however, there won't be *any* icons on your Desktop. To restore your icons, right-click your Desktop and select Properties. Click the Customize Desktop button and click the checkbox for each icon you'd like on your Desktop. You can even change what the icon looks like by highlighting it, clicking the Change Icon button, and browsing to a new icon of your choice.

■ **Change The Start Menu.** Even after switching to the Windows Classic view, that pesky Start menu still retains the WinXP style. To switch it to the Classic style, right-click Start and select Properties. Click the Classic Start Menu radio button. This changes your Start menu to one that is basically the same as the original Windows Start menu.

Additional options can be accessed by right-clicking Start and selecting Properties. If you're using the menu in Classic mode, click Customize to view these options. If you're using the Start menu in standard mode, click the Customize button followed by the Advanced tab. These options let you change interface features, such as Expand Control Panel and Expand Printers, which opens the Control Panel and Printers options from the Start Menu as submenus rather than open them as new Windows.

You can also make a quick tweak to adjust how the Control Panel appears when you open it. Click Start, Settings, and Control Panel. It opens up in Category View, which is essentially a "short-report" form for the Control Panel. Click Switch To Classic View in the left pane to revert the Control Panel to the Classic style if you want to view it like you're used to.

■ **A Classic Choice.** Although we've covered the essentials of returning WinXP to a more familiar look, we've only scratched the surface of how customizable WinXP's user interface is. You may even find once you've started tinkering with it that a combination of old and new may work better for you. And if you really want the Hot Dog Stand color scheme back, you can make it, but we'll let you figure out how to do that yourself. Some secrets are best left buried. LS

by P. Bryan Edge-Salois

Teach Old Programs New Tricks

Try Fussy Software In Compatibility Mode

Since the earliest days of MS-DOS, Microsoft has kept the need for backward application compatibility at the forefront of its development efforts. Windows 95, for example, was designed from the ground up to maintain a software lifeline for the installed user base still clinging to Windows 3.x and MS-DOS applications.

Even though this approach kept loyal users happy, it presented serious problems for the overall stability of Microsoft OSes (operating systems). The Windows 95/98 (Win9x) series' kernel (which provides the OS' core services, including memory, process, and disk management) consists of an uneasy mixture of 32-bit and 16-bit code. DOS never really went away; it was just hidden out of sight behind Win9x's pretty facade.

Windows XP finally breaks free of the DOS legacy with a kernel based on the Windows NT and Windows 2000 kernel. Microsoft's mission was to bring the reliability and robustness of these business OSes to the consumer. WinXP is the real deal, a purebred 32-bit OS.

■ **Alienate The Past.** WinXP worries many users of legacy software. Both WinNT and Win2000 are notorious for being extremely picky about the type of software they will coexist with. For example, many game programs that run flawlessly in Win9x will not run at all on WinNT/2000. Many requirements for running programs on the WinNT/2000 kernel are simply not met by applications coded to run on Win9x systems.

Microsoft engineers were certainly cognizant of this dilemma during the development of WinXP. They knew that while users would certainly appreciate enhanced stability and reliability, they would also want their favorite applications to run properly.

Microsoft needed to ensure compatibility with a large universe of existing applications while delivering on its promises of enhanced OS reliability.

By and large, Microsoft delivered a viable solution to this thorny problem. WinXP lets users select a compatibility mode for applications that refuse to run properly in WinXP. By setting a compatibility mode, a user can tell WinXP to behave similarly to Win95/98/Me/NT 4.0/2000. In most cases, applications that ran well in Win9x may need this setting tweaked to deliver optimal performance in WinXP. If your favorite game refuses to run under WinXP, adjusting its compatibility settings will very likely solve the problem.

■ **Different Kernels, Different Behaviors.** Because the WinXP kernel is based on the WinNT 4.0/2000 kernel, applications must interact with WinXP in a different manner than with its Win9x predecessors.

Many applications detect the version number of the OS even before they start running. And, in some cases, certain applications are hard-coded to run only on specific versions of the Windows OS. When installation is attempted in WinXP for such an application, the process may stop dead in its tracks because the installation program finds a version of Windows it is not programmed to deal with. Other times, the software may complete the installation but not run when the program's executable file is accessed.

Multiple-user mess-ups. WinXP is designed to be a shared, multiuser OS. Many applications designed for the single-user Win9x world may not function properly in a system designed for multiple users. These applications may try to write to areas of the Registry reserved for "all users" in WinXP when they should be writing data to user-specific Registry areas, for example.

Also, WinXP's user settings may prevent the application from performing certain tasks, depending on the level of access the logged-in user has. For example, WinXP may deny access to a folder the application needs to access; if this happens, the application may behave unpredictably or even crash.

Folder switches. Common folder locations have changed in WinXP, and this is a potential source of headaches. In Win9x, the My Documents folder is located in the root directory, C:\MY DOCUMENTS (or whatever drive letter corresponds to the drive or partition where the OS is installed). In WinXP, the location for My Documents is C:\DOCUMENTS AND SETTINGS*USERNAME*\MY DOCUMENTS. WinXP does this to support the multiuser environment. Applications that search only one possible location for commonly accessed folders will run into trouble operating in WinXP.

Little speed bumps. Other potential minefields include WinXP's power management features, enhanced elements in the graphical interface, interactions with hardware elements (such as keyboards), protection of critical system DLLs (dynamic-link libraries), and overall memory management.

However, this does not mean that most applications that ran well in Win9x will not run well, or at all, in WinXP. In fact, most applications install and run without a hitch,

Compatibility Test Run

We tested how an old Windows game, Ubisoft's POD, would work with WinXP. Initially, the program's setup routine aborted the installation at the very end of the process, warning us that it couldn't write some needed entries to the system Registry. We right-clicked the Setup.exe file in the program CD-ROM and chose Win95 Compatibility Mode. We then tried the installation again; this time, the installation completed without a hitch.

When we launched the program, the game's

introductory credits and movie loaded perfectly. However, the game's main menu appeared garbled and was unreadable. We were able to see the menu clearly when we adjusted the compatibility mode settings to run the program in 256 colors and at 640 x 480 resolution and disabled WinXP's visual themes while the program ran.

We also tested an older family application, Mayo Clinic's Family Health CD-ROM. The application installed properly but

delivered jerky video playback when the program was run. Changing compatibility mode to Win95 improved video playback performance, albeit marginally.

However, just about every application we threw at WinXP ran as expected. We did not test any utilities with system-level access, such as antivirus software. Using versions of this type of program designed for Windows 9.x in a WinXP system could cause serious harm to your WinXP installation. □

even when the application code is not exactly 100% certified for WinXP.

■ **Implement Compatibility.** When you upgrade your system to WinXP, one of the first tasks done by the installation routine is to check the compatibility of your applications against a database. The installation routine is able to check applications in Win9x and WinNT/2000 systems.

After the applications are checked against a couple of databases, the system warns the user of any potentially show-stopping applications. This routine checks hardware and software for potential problems before installation is complete so you have time to halt setup and fix the problem before proceeding with the install.

Keep in mind, the above approach will not work if you are doing a clean install of WinXP because none of your applications will reside on your hard drive during the installation process. In that case, you'll have to discover potential incompatibilities when you reinstall your applications and begin to use them in your new environment.

Get compatible. If an application is not behaving under WinXP, you can adjust the application's compatibility settings in one of two ways: use the Application Compatibility Wizard or access the Compatibility tab in the offending executable file's Properties menu.

Both methods achieve exactly the same thing. Let's see how it's done for each one.

The wizard. To launch the Application Compatibility Wizard, click the Start button, Programs, Accessories, and Program Compatibility Wizard.

The initial screen describes the wizard and warns you to keep from using it on programs
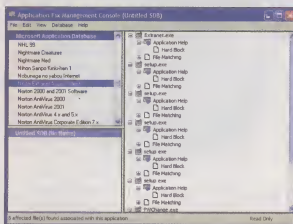
The SysMain.sdb file, which has more than 200 workarounds, shows a hard block for the application's main files.

that interact with low-level OSes, such as antivirus and backup system programs. Using versions of these programs intended for older Windows OSes will wreak havoc on your WinXP installation. Do yourself a favor and shell out the extra cash to get the WinXP-certified version of your favorite antivirus software or system utilities.

The next screen asks you to choose the location of the program to adjust. You can browse for a program already installed on your hard drive, or you can also choose a program in a CD-ROM. In addition, the Wizard will generate a list of programs, showing the program name, the folder where it resides, and any special settings associated with it.

Once you've selected the program you wish to run in compatibility mode, the Wizard will ask you to select a compatibility mode from a list. The choices are Win95, WinNT 4.0 (Service Pack 5), Win2000, Win98/WinMe, and Do Not Apply A Compatibility Mode. After making a selection, click Next. The wizard now wants you to choose display settings for the program. You can run the program at 640 x 480 screen resolution, choose to run only 256 colors, or choose to turn off WinXP's visual themes. Click Next to advance.

The wizard's final screen displays your settings and launches the program as soon as you click Next. Run the program to test your settings. When finished, close the program and return to the wizard. To proceed, you must decide if you want to make the chosen settings permanent, if you want to try different settings, or if you want to quit trying compatibility settings at this time.

Trusty right-click. The other method for adjusting application compatibility modes is to locate an application's executable file and right-click it. Click Properties from the pop-up menu and click the Compatibility tab. The resulting dialog box lets you change the compatibility mode by selecting one of the modes available in the Compatibility Mode drop-down list. Adjust the display settings by checking the appropriate box under Display Settings. When finished, click Apply and OK to enter your changes.

This approach gives you a bit more control than the wizard and lets you zero in on the executable of your choice and make the necessary changes. Once you apply your changes, you must launch the application and test its behavior to verify it now works in WinXP. The only difference between the two is that the wizard combines the mode selection and testing phases into a single series of steps.

■ **What WinXP Already Knows About Your Apps.** After installing WinXP, you may find that all of your older applications work

flawlessly. In fact, you may be especially surprised to find that applications you would never expect to work under WinNT/Win2000 (such as many popular games) run perfectly without requiring further tweaking.

Microsoft's engineers and developers hardwired lots of information into WinXP about applications that may not work perfectly due to subtle programming differences and the fixes the OS must apply to get them to work. These fixes are found in a database called SysMain.sdb, which contains more than 200 workarounds for compatibility problems discovered during testing.

Match game. The database works by letting WinXP match an executable file's name with the appropriate set of fixes. SysMain.sdb features a structure similar to the Windows Registry, with primary keys that contain subkeys that describe specific entries.

The key containing application fixes is called Applied Compatibility Fixes and these entries contain subkeys labeled Compat Fix. The primary keys called File Matching contain the information necessary to identify the files associated with the application. Items described in these subkeys include File Name, File Size, Checksum, and Binary Version. Once WinXP matches an executable file with the information resident in the database, it implements the fix automatically.

The database is also periodically updated as Microsoft releases new information and workarounds for other applications. If you have turned on WinXP's automatic update feature, the database will automatically stay up to date as new fixes and workarounds become available.

Just out of luck. There are times when no fix is available. In this case, WinXP goes to another database called AppHelp.sdb that contains help messages designed to lead you to a Microsoft or non-Microsoft Web site to locate more information or to download a patch for an application with no workaround in SysMain.sdb.

For these applications, the SysMain.sdb database entry will feature a primary key called Application Help and will have one of two values under this key: Hard Blocking or Non-Blocking. Hard Blocking means the application will not execute at all, but Non-Blocking lets the application execute, albeit with a warning.

When you launch an application linked to the help database, you either get a dialog box that lets you cancel the application launch process or a dialog box encouraging you to get further details about the application but still letting you continue launching the application.

■ **Compatibility Toolkit.** Microsoft's Application Compatibility Toolkit is a set of documents and utilities designed to help you further explore the compatibility of your applications. One of the applications bundled with the kit is called the Compatibility Administration Tool.

This utility lets you browse the SysMain.sdb database that comes with your system. The Compatibility Administration Tool also lets you create custom fixes for applications.

For example, if you are a corporate user and need to deploy specific fixes to repair a homegrown application, this tool lets you create the
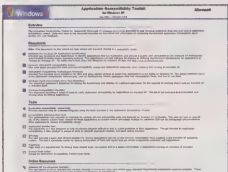
Microsoft's Application Compatibility Toolkit features a main page that itemizes all the Toolkit components and has links to launch each one.

The Program Compatibility Wizard generates a list of programs that reside inside your system. You can choose which program to run in compatibility mode from this list.
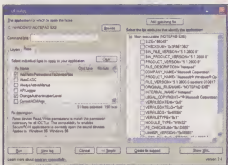
QFixApp can help developers and power users customize the fixes implemented for any application. A wide choice of file attributes can be used to clearly identify the application.

fix and quickly deploy it to multiple users across a corporate network.

QFixApp is another utility included with the kit. With this utility, you can select an executable file and apply an overall set of fixes, as defined by the OS or mode displayed in the Layers tab. To see the actual fixes implemented for Win95 compatibility mode, simply click the tab called Fixes once you select a compatibility mode.

For example, Win95 compatibility mode implements a set of 51 fixes out of a total of 195 possible fixes for all modes. In contrast, Win2000 only requires two fixes. Clicking the Advanced button launches a window showing detailed identifying information about the file, such as size, checksum, file version, and original file name. You can choose as many of these parameters as you wish to select the file attributes that identify the application.

The compatibility toolkit contains an application called AppVerifier, designed to help test and debug software for WinXP compatibility. The kit comes with a help file and with documentation describing Microsoft's compatibility efforts and the technologies behind them.

You can obtain the kit for free by browsing to the MSDN (Microsoft Developer Network) site. Go to http://msdn.microsoft.com, point at Products And Technologies, and click Windows XP. In the window on the right, click Application Compatibility Developer Center under Related Links. In the next window, click Windows XP Application Compatibility Toolkit 2.0.

■ **Mutual Understanding.** WinXP is widely considered Microsoft's most radical revamping of the venerable Windows line since Win95. Microsoft is betting the farm that WinXP's rock solid reliability, built on the WinNT and Win2000 foundation, will convince users the upgrade is a must-have. Beyond reliability, however, Microsoft is also hoping to deliver an OS that is capable of running consumers' favorite applications without a hitch. Even though a business-oriented, professional version of WinXP is on sale, the focus of this OS is clearly on the consumer side of the market.

To deliver an optimal experience, WinXP must also deliver backward compatibility for the thousands of applications created for the Win9x platform without compromising the enhanced performance under the hood. Microsoft's implementation of compatibility modes is one of the ways to assure customers that their software will not suddenly become obsolete. [LS]

by Sixto Ortiz Jr.

Custom Fit

How To Change & Personalize Settings
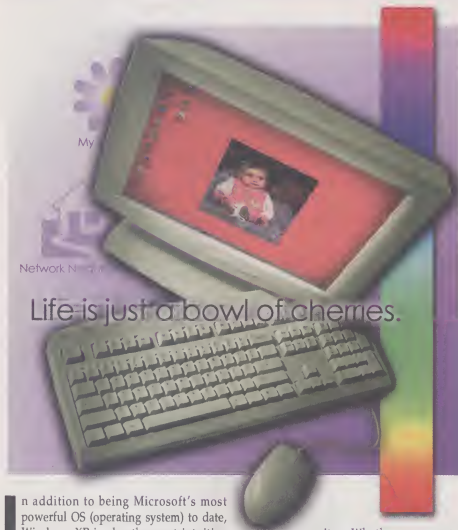
In addition to being Microsoft's most powerful OS (operating system) to date, Windows XP is also the most intuitive and user-friendly. Part of this is due to the fact that WinXP is so highly customizable.

Users have boundless options for tweaking the look and feel of the OS to suit just about any need or style. Although many of the personalization features are similar to those found in previous versions of Windows, several of the menus and dialog boxes have been completely redesigned, moved, or both. In order to simplify the process of customizing WinXP to meet your needs, we've compiled the following list of popular settings and how to find and modify them.

■ **Desktop Settings.** The simplest and most obvious way in which you can customize WinXP is by modifying its appearance on your monitor. Whether you want to change the image that shows up on your Desktop or tweak the screen resolution to a higher setting, WinXP makes it easy to personalize your experience.

How big is big? Generally, WinXP defaults to a medium screen resolution (800 x 600 pixels) when it is installed. If you have a large monitor (19 inches or larger), you may want to increase the screen resolution so you can fit more on the screen (although everything on the screen appears smaller). To do this, click the Start button and select Control Panel from the menu. This will bring you to the new, streamlined WinXP Control Panel menu. To access your screen resolution settings, click Appearance And Themes and then select Change The Screen Resolution. You should now see the Display Properties window, which shows a picture of a computer monitor and a summary of your current settings.

Using the Screen Resolution slider bar, select the resolution setting you wish to use. As you move the slider, the monitor image will change to indicate a rough idea of what your new selection will look like. Once you see a setting you like, click OK to put that setting into effect. Depending upon how WinXP is configured to apply Display Properties changes, your new setting will be activated in one of three ways.

How and when? From the Display Properties window, click the Advanced button to bring up a further list of options. If it's not already selected, click the General tab. In the Compatibility section, you can choose how and when you would like WinXP to implement whatever screen resolution and color depth settings you choose.

If you select Restart The Computer Before Applying The New Display Settings, you will need to reboot your computer in order to see any changes you make to the display settings. To avoid firing up the system again, click the Apply The New Display Settings Without Restarting radio button. If you select Ask Me Before Applying The New Display Settings, WinXP prompts you each and every time you make a change: Do you want to apply these changes now or the next time you restart the computer?

Look at all the colors. As with screen resolution, color depth is one element many users will want to change. Basically, this setting determines how many colors WinXP uses to display images on your Desktop and in your applications (including your Web browser).

Most new computers come with a default setting of either Medium (16-bit) or Highest (32-bit). Either of these settings is adequate for everyday use, though the 32-bit color setting can slow down systems equipped with a low-end graphics card. If you need to change your color depth setting, simply select the new setting from the Color Quality drop-down menu and click OK.

In the background. If you want to change the background image, you again need to visit the Display Properties menu. Click Start, Control Panel, and Appearance And Themes. Select Change The Desktop Background. You should now see the Display Properties window, set to the Desktop tab with a thumbnail image of your monitor that has the current background image displayed. To change this image to one of the default WinXP backgrounds, scroll through the Background menu. As you highlight each image, the thumbnail will update to show you what your new Desktop will look like.
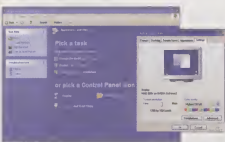
To adjust your screen resolution, use the slider bar on the Settings tab of the Display Properties menu.

To use an image of your own, click Browse and navigate to the folder where you store your image files. Highlight the image you like and click Open to make that picture your background image. Note that the choice won't go into effect until you click OK or Apply.

Before you do that, however, you can choose how you wish to have the image displayed on-screen. You have three options, all listed in the drop-down menu immediately beneath the Browse button. You can Center the image, leaving a blank area on any part of the Desktop that your image does not cover. You can also Tile the image so that it repeats until it fills the entire screen (this works best with small images designed specifically for the task). Finally, you can Stretch the image so it fills the entire screen, which is a good choice for high-resolution images taken with your digital camera.

Screen savers. To use a screen saver in WinXP, you also set this option through the Display Properties menu. Bring up the menu and select the Screen Saver tab. Choose the one you like from the Screen Saver drop-down menu. An animated thumbnail image of the screen saver will appear to give you a preview of your selection. If the screen saver has any customizable settings (such as what text message to display for the 3D Text screen saver),
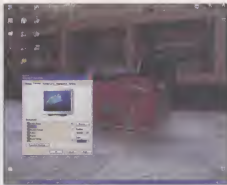
You can select a default Windows XP background image or choose one of your own.

you can click the Settings button. When you have everything configured to your liking, click OK or Apply.

■ **Back To The Start.** Introduced with Windows 95, the Start menu has become a key element of every Windows OS since. WinXP is no exception, but the Start menu has been radically transformed to allow for easier access to your files, programs, and system settings. In addition to providing a gateway to your data, the Start menu provides for you a number of personalization options that let you adjust the way in which you access files and features.

Taskbar on top. The Start menu is accessed via the Taskbar at the bottom of the screen, but if you have a program running in full-screen mode, you may not be able to see the Taskbar at all. In order to have the Taskbar remain in view regardless of what else is on-screen, right-click a blank section of the Taskbar and select Properties from the pop-up menu. This brings up the Taskbar And Start Menu Properties window. Under the Taskbar tab, put a check in the box next to Keep The Taskbar On Top Of Other Windows and click OK.

Auto-hide the Taskbar. If you don't like having the Taskbar appear on-screen at all times, but you still want it to pop up when you need to access the Start menu, you can set the Taskbar to appear and disappear

as needed. Bring up the Taskbar And Start Menu Properties window again, check the box next to Auto-Hide The Taskbar, and click OK. This banishes the Taskbar until you move your mouse over the very bottom edge of the screen. Once you do that, the Taskbar will then pop into view until you move your mouse away, at which point the Taskbar will vanish again.

Group Taskbar items. A new feature in WinXP is the ability to group multiple windows of the same application on your Taskbar. In other words, if you have five Internet Explorer windows open at once, you can have all five appear under a single Taskbar button.

In the Taskbar And Start Menu Properties window, check the box next to Group Similar Taskbar Items and click OK. Depending on your screen resolution, WinXP will group your Taskbar buttons so the bar itself is less cluttered. Clicking a grouped Taskbar button will generate a pop-up menu of the various windows opened by the same application. Note that if you run WinXP at a very high screen resolution (such as 1,280 x 1,024), the Taskbar grouping may not kick in until you have eight to 10 windows open at once.

Other Taskbar items. You can customize a few other options in the Taskbar tab of the
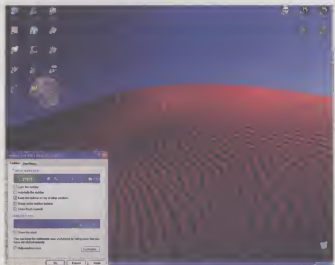
To configure the Start menu and Taskbar, right-click an open space in the Taskbar to bring up the Taskbar And Start Menu Properties dialog box.

Taskbar And Start Menu Properties window, including adding the system clock to the Taskbar, adding the Quick Launch menu, and hiding inactive System Tray icons. Simply checking or unchecking the appropriate options on the menu controls the clock and Quick Launch options. The inactive icon

option, which basically hides those System tray Icons that are not immediately necessary (such as printer or volume controls), is controlled in the same fashion.

New or old Start? The WinXP Start menu is very different from its predecessors. Some users may not like the new menu, in fact, because it positions various options (such as Control Panel) in slightly different places than in earlier versions of Windows. Fans of the older Start menu can revert to a similar menu in WinXP, however.

Bring up the Taskbar And Start Menu Properties window and click the Start Menu tab. Selecting the Start Menu radio button leaves the menu in WinXP style and selecting Classic Start Menu reverts to a style similar to Win95/98/Me. For more on the switch to the Classic appearance, see "Catch The Wave?" on page 96.

To further personalize the WinXP Start menu, click Customize. Here you can choose small or large icons for the Start menu, select the number of your most frequently used programs to show on the Start menu, and choose whether to include shortcuts to your preferred Web browser and e-mail programs.

Lock in place. Of course, you can choose to make a very simple adjustment to your

Taskbar's size. To disable accidental moving or resizing of the Taskbar, right-click the Taskbar and select the Lock Taskbar option.

■ **More Personalized Options.** WinXP offers a range of additional customization options that you can use to make

Instead of a standard list, Filmstrip mode lets you view previews of image files one at a time.

your everyday use of the OS easier and more dynamic. At the same time, the default WinXP menus actually hide files and settings, which makes it difficult for you if you need to work with them. Here is a brief rundown of some of the settings you can change and what they accomplish.

Now you see it, now you don't. To view files and folders on your computer, select My Computer in the Start menu. This brings up an iconic list of the drives currently installed on your system (hard drives, Zip drives, CD-ROM drives, and any others you might have). To view the contents of a specific drive, double-click the icon for that drive.

If you click the System (C:) drive, you may notice that its contents are hidden from view. This is because WinXP stores all of its critical system files on that drive (at least, it does if you followed the default installation process). If you don't want the contents of that drive hidden from your view, click the Show The Contents Of This Drive option in the top-left section of the window under System Tasks. This lets you browse your System drive.

Icons, thumbnails, and tiles. With WinXP, you can now choose to view each folder on your computer in a variety of styles. Specifically, you may view the contents of each folder in Thumbnails, Icons, Tiles, List, or Details mode. These options are

available through the View menu. Thumbnails mode provides a small image of every graphical file in a folder so any pictures or video clips will appear as tiny preview images. Note that if you have a directory teeming with hundreds of digital photos, Thumbnails mode can really drag your system performance to a crawl.

The Icons and Tiles modes show each file as an icon although the Tiles mode lines up these icons on a grid for easier viewing. The List mode simply enumerates the files in a particular folder with a tiny icon next to each to give you some idea of what sort of files are in the folder. Details is similar to List mode, except that it also provides text labels next to each file explaining what type of file it is, how large it is, and when it was last modified.

One other mode, Filmstrip, appears on your list of options whenever you browse a directory filled with image files. This mode lets you see a fairly large preview of one selected image and thumbnails of the rest. You then scroll back and forward through the images using a series of buttons beneath the large preview image.

One-stop browsing. Changing the viewing settings for every folder on your computer can be a real pain. So to make the process simpler, WinXP lets you apply a particular style to every folder at once. To do this, configure one folder to your liking and then click the Tools menu, Folder options, and View. Select the Apply To All Folders option and your current folder-viewing configuration will be used for every folder you browse.

■ **You Control The Look.** The bottom line with WinXP is that if you don't like the way something looks on your screen, there is a very good chance you can change it to suit your tastes. By exploring the many options available to you in Microsoft's new OS, you can create a better, more personalized version of the software that makes all of your computing tasks easier, or at least easier on the eyes. [LS]

by Michael E. Ryan

If you choose to group similar Taskbar items, you will see a menu of multiple windows opened by the same application.

Taskbar: move or resize it. To move the Taskbar, click and hold the Taskbar and move your mouse to the top, left, or right edge of the screen. When you have the Taskbar where you want it, release the mouse button. Similarly, if you click and hold the edge of the Taskbar, you can drag your mouse up or over to expand the

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Tweaking Luna

How To Change Themes & Appearance

Probably the first thing Windows users will notice after they install Windows XP is that "Everything looks so different!" Forget the Macintosh OS (operating system) X and its Aqua interface (icons and interactive windows); WinXP has the, ahem, Luna interface. Although some things, such as the Start menu, have been juggled a bit, the most visible changes from the Classic Windows 9x/Me/2000 look are a new color scheme, rounded window corners, and far fewer icons on the Desktop.

Some users love the new look as it is. Others grumble until they find the way to switch back to the Classic view, which may feel more familiar or business-like. "Catch The Wave?" on page 96 has more on getting back to the Classic Windows look.

Others like the spirit of the Luna interface but would like to change its appearance a little for a more personalized system. We'll show you how. Even more advanced users can't afford to ignore the appearance settings of their WinXP systems. Too many visual bells and whistles can slow down any operating system. We'll tell you how to speed up your PC at the expense of visual effects, if you like.

■ **Themes.** WinXP, as with Win95/98/Me before it, lets you change such things as its Desktop background (the picture on the Desktop formerly called wallpaper), Taskbar colors, fonts, mouse pointers, and even the sounds it plays when certain events happen. Win98 introduced themes, which let users change several of these settings at once.

Microsoft provided buyers of Win98 and its Plus! additional features CD-ROM with several themes that had science fiction, sports, or nostalgic feels. Wisely, though, the company let users make their own themes, as well. Whether your tastes run toward the movie "Tombstone" or the miniseries "Pride and Prejudice," you can find a suitable theme online.

Such themes assign character faces to common icons, relevant graphics to the mouse pointer, and even snippets of dialogue to play during system events, such as opening a window or shutting down the PC. There are hobby themes, literary themes, and more waiting for you online at download sites, such as http://www.themeworld.com. Of course, you can change any of a theme's settings to get it just the way you want it.

Changing your themes. There are several ways to access the themes and other visual settings in WinXP. The most common method is to click Start, Control Panel, and Appearance And Themes. Click Change The Computer's Theme. The Display Properties window launches with the Themes tab selected. As an alternative to accessing the Control Panel, you can right-click a blank part of the Desktop and choose Properties. Display Properties will surface with the Themes tab selected. All of the following instructions center on the Display Properties so keep it open as you read this article.

Next, click the Theme drop-down list. You'll notice that the list includes several options, such as Windows Classic and Windows XP. If you've already adjusted WinXP's appearance settings somewhat, the current Theme may be listed as Windows XP (Modified). You might wish to click Save As, name the theme, and pick a folder for it before clicking Save. By saving your current theme this way, you can always return to it if you don't like the changes you make later.

You can select a different theme from the list, preview it in the Sample screen, and then click Apply to affix the changes to your Desktop. If the new theme is almost (but not quite) perfect, you can continue on to the next section for tips on how to change certain aspects of it. This is also the process you follow to create your own themes. Set up WinXP the way you want it and save your Theme as outlined above.

Other choices. Two choices in the Theme drop-down menu are not themes at all. The first choice is More Themes Online, which may make you think it will help you find themes available for free download. If you click this, Windows launches your Internet connection and goes to http://www.microsoft .com/windows/plus. Click the Themes link along the left side of the screen.

Microsoft shows a few themes on the next page, including Aquarium, Space, and da Vinci. Although these sound similar to certain Win98 themes, they sport different looks and more detailed graphics. These themes also put new skins (changeable interfaces) on WinXP's built-in Windows Media Player for a more comprehensive change to your Desktop.

Unfortunately, as of press time, there doesn't seem to be any way to download these Themes for free, which makes the entire page an advertisement for Microsoft's $39.95 Plus! For Windows XP CD. A direct marketer might call it innovative of Microsoft to put a link to an ad right there in the OS; others might call it something else.

The other choice in the list is Browse, which can help you locate and use themes saved somewhere on your hard drive. If you have downloaded such a theme with a .ZIP or some other file extension indicating it's a compressed file, you must first use a compression utility, such as WinZip, to extract the theme to a folder.

To do this, right-click Start and choose Explore. Find the compressed theme you downloaded and double-click it. WinXP Home edition's Compressed Folders feature, or whatever compression utility you have installed, should let you decompress the file. If the decompressed theme yields an EXE file or two, do a virus scan with your antivirus software to make sure they're safe to open. Next, double-click each EXE file in turn to install the theme. Finally, select the unzipped theme through the Themes tab's Browse window and click Apply to use it.

Note that not all of the privately made themes you'll find online will be

fully compatible with WinXP. Thankfully, some sites, such as http://www.themedoctor .com, add little icons next to descriptions of Themes found to be WinXP-compatible. You may be able to use an older Theme that hasn't been tested yet, but be warned that you may have to disable certain features, such as the screen saver, to get the Theme to work.

■ **Appearance.** Click the Appearance tab in Display Properties for another selection of visual items with which you can fiddle. The settings here control minutiae, such as the shape of dialog boxes and application windows, their colors, and how large their text is. Changing any of these will modify the theme you're using. Consider saving your current theme as described in the section above if you're not sure you'll keep the changes you make.

The upper half of the Appearance tab acts as a preview screen. It will reflect the changes you make below without altering your system's appearance so you can decide whether to click Apply to accept them. Click the Windows And Buttons drop-down list to toggle between Windows XP Style windows, which have rounded corners, and Windows Classic Style ones.

You'll have tons more choices in the Color Scheme list, but only if you have Windows And Buttons set to Windows Classic Style. If you have Windows XP Style enabled, you'll have just three Schemes from which to choose: Blue, Olive Green, and Silver. These Color Schemes

are like minithemes in that they're ready-made color settings for your windows and buttons. Try out a few schemes with Windows Classic Style enabled to see what we mean.

Finally, the Font Size drop-down menu has Large and Extra Large settings to make WinXP's text easier to read. Experiment with these if you have trouble reading fine print. Remember, you'll need to click Apply to keep any changes you make.

Effects. Let's turn our attention now to the Effects button. Click it, and you'll find a few settings to control effects, such as how menus and tooltips behave and whether windows should continue to display what's in them as you click and drag them around the screen.

The main reason to mess with these Effects will be if one or more of them get on your nerves. If you're hoping to free up a little processor speed by disabling Effects you don't really need, it's better to disable them en masse rather than one at a time in this settings window. See the Performance section below to learn how.

A couple of items in the Effects window merit a closer look. The one helpfully labeled Use The Following Method To Smooth Edges Of Screen Fonts has two settings. The Standard one is fine for desktop computing with a CRT (cathode-ray tube) monitor, which is the TV set-sized type most of us use. If you're a notebook computer user, or if your PC has an LCD (liquid-crystal display) flat monitor, try the ClearType setting. It may make fonts easier to read. Another checkbox, Use Large Icons, is self-explanatory. Check it, then click OK and Apply to try it out. The icons on your Desktop will grow significantly.

If you want to break free of convention, so to speak, return to the Appearance tab and click the Advanced button. From the deceptively simple Advanced Appearance window, you'll be able to change the colors and fonts of on-screen elements, such as the Desktop, windows, icons, scrollbars, and many others. Different items have different settings you can alter.
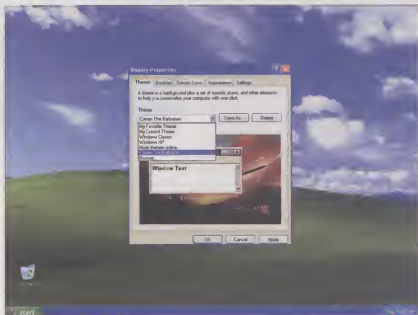
A nice, sunny day on the Desktop. Blue sky all around. Little does this unsuspecting, pastoral landscape know . . . a barbarian is coming. A barbarian theme, that is.
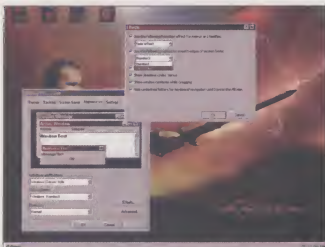
One of the Effects button's more useful options is the ClearType method of smoothing the jaggedness of screen fonts. This may really sharpen text on your notebook computer or flat-panel monitor. See "A Sight For Sore Eyes," page 44, for more information on ClearType.

For example, you can change a menu's size and color, its font size and color, and even make its text bold or italic. However, the only aspect you can change of the Desktop from this settings window is its background color. Click OK to see any changes in the Appearance tab's preview window and click Apply to make them permanent.

For more information on how to change Desktop attributes and other settings, refer to "Custom Fit" on page 100.

■ **Screen Savers.** The Screen Saver tab in Display Properties gives you the opportunity to change your computer's appearance even when you're not using it. A screen saver is some sort of changing graphic or photo that the monitor shows when you haven't touched the mouse or keyboard for a certain amount of time. Screen savers used to be essential to prevent unchanging images from "burning in" a noticeable pattern on older monitors, but they're mainly used for entertainment today.

Click the Screen Saver tab and then choose a Screen Saver from the drop-down list. Some, such as Beziers and 3D Pipes, are simply moving graphics. Others, such as Marquee and 3D Text, let you add your own message to be displayed. Click Settings to type in your text for these or adjust the speed and other properties of most screen savers. Click Preview to see how it will look, then Apply when you're satisfied.

Here's a fun tip: You can make a custom screen saver with your own photos. Move the

photo files you want to use into the My Pictures folder, which is located in My Documents. Next, in the Screen Saver list, select My Pictures Slideshow. By default, WinXP will put cheesy transitions between each photo; click Settings and uncheck the box marked Use Transition Effects Between Pictures if this is going to bother you. Notice that you'll be able to flip through all of the screen saver's photos by using the arrow keys on your keyboard. The My Pictures Slideshow feature is one of the little extras we like about WinXP.

■ **Performance.** As we mentioned above, WinXP's appearance settings bear upon your PC's overall performance. Features such as animated windows and sliding buttons may look nice, and they may even make your system more fun to use. However, if you're a gamer or a performance addict, you should know that this eye candy takes precious processing power and memory away from everything else your computer runs.

In case you would rather take charge of the way WinXP allocates some of its system resources, we'll show you how to tune your system for performance and let its appearance settings change as they may. In the Control Panel, choose Performance And Maintenance and then Adjust Visual Effects.

The Visual Effects tab of the Performance Options window will appear, showing a list of the little extras WinXP adds to your Desktop experience. You can adjust these in several ways. The easiest way is to choose one of the top settings, Adjust For Best Performance. This will get rid of all the visual effects

and speed up your system slightly. If there are a few effects you find you miss later, and you don't mind losing a tiny amount of system resources to get them back, click Custom. Click the effects you want to reinstate to put a check mark in each of their boxes. Click Apply after any changes.

■ **Serious Themes.** Now that you know how to change your WinXP system's appearance and even make your own themes, think of some ways to use these features for purposes other than sheer whimsy.

Why not make a theme out of your company's logo, colors, and even the type of font used in the company letterhead? This could impress clients, especially in areas of high visibility, such as the front desk. If you have your monitor set up so that a client opposite your desk can watch what you're doing, a company theme could convey a sense of pride in your business. Likewise, educational facilities could fly the school colors through themes, and military personnel could display unit colors or insignia in the same fashion.

Whether you want your WinXP computer to reflect your individual interests or the mark of

At http://www.themedoctor.com, you can find many themes for your PC. We chose a shiny Conan The Barbarian theme, complete with James Earl Jones' Thulsa Doom character as the Recycle Bin icon.

a larger group, there are plenty of ways to customize it. Again, we suggest you read some of the other articles in this section for information on changing other visual elements to get the look you want. [LS]

by Marty Sems

More Than Maintenance

The New & Improved Task Manager

Microsoft has made plenty of changes to its Windows OS (operating system) with the new Windows XP; one of the more notable changes comes in the form of the new and completely different Task Manager. No longer designated for just menial hard drive maintenance tasks, the Task Manager is now the watchdog of the entire computer. It monitors everything that goes on within the Desktop, right down to network activity and anything running beneath the surface in Windows.

■ **Complete Facelift.** In the older versions of Windows, users usually called on the Task Manager when things weren't going their way, mostly when a program stopped running, by pressing the infamous CTRL-ALT-DELETE key combination.

Pressing these three keys simultaneously (known as the three-finger salute) would bring up a window that gave the user the option to stop a program from running or just start over from scratch and reset the computer. WinXP's Task Manager does also serve this role, but thanks to the OS' heightened stability, it's conceivable that you might never have to hit the hard reset button again.

The Task Manager helps make sure your system stays on the right track. If a program stops responding, you can shut it down right from the Task Manager, and your computer will continue its other functions as normal, without crashes or the need to reset. If you're looking for the task-scheduling functions that older versions of Task Manager had, however, you have to go into your Control Panel, click Performance And Maintenance, and click Scheduled Tasks.

Get into it. To access the Task Manager, press CTRL-ALT-DELETE. This brings up the new window. Most of the main menu options are standard for the whole Task Manager. Some, such as the View menu, change with each Tab selection, and are noted in those sections accordingly.

To update any of the Task Manager data at any time, click the View menu and select Refresh Now. To change the frequency at which the data is automatically updated, click the View menu, point to Update Speed, and click the command you want. The Task Manager's update speed has three settings: High (twice per second), Normal (once every two seconds), Low (once every four seconds), and Paused (display doesn't automatically update).

You will also find that the Windows shutdown options are at your disposal in Task Manager's Shut Down menu. Depending on the Power Options that are available from your computer, you can choose to Stand By, Hibernate, Turn Off, Restart, Log Off the current user, or simply Switch the current user. These options duplicate the functions that are found in the Start menu.

■ **Applications Tab.** WinXP Task Manager is itself divided into five main areas, one of which is only displayed when your computer is hooked up to a network. We have found that the Applications tab is by far the
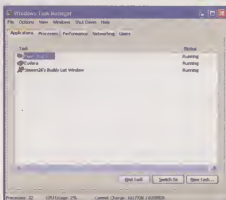
The Applications tab is the most familiar part of the new Task Manager. It lets users safely and easily shut down problematic programs.

most important part of the Task Manager for most home users.

This part of the Task Manager lets you see which programs are running on your computer at any given moment and the status of those programs (either Running or Not Responding). Thanks to options in the View menu, you can choose to see the running programs either as a detailed list or large or small icons.

Another new twist that was built into the Task Manager is its ability to switch directly to other active programs from the Task Manager. To switch to another program, click the program that you want to bring to the forefront and click the Switch-To button. The new Task Manager also lets you start a program right from the Task Manager by clicking the New Task button and browsing for the program that you want to start. Essentially, the New Task button is an identical alternative to the Run command in the Start menu.

The third new button that you will find on the Task Manager is the End Task button. Using this button lets you selectively stop whatever individual task you choose. Thanks to WinXP's improved stability, the Task Manager will end problematic programs safer than in past versions of Windows. This is designed to make those infamous blue-screen crashes a thing of the past, or at least far more infrequent.

In the Applications tab, you can also access the Windows menu, which lets you choose to Minimize, Maximize, Tile Vertically, Tile Horizontally, or Cascade all of your open program windows. A final option in that menu, Bring To Front, gives you the opportunity to select a running program from the Applications tab window and bring it to the front of all of the other open program windows.

The status bar on the bottom displays the number of Processes that are running on your computer, the percentage of CPU Usage, and the Commit Charge on your system's memory (see the Performance section for more information).

■ **Processes Tab.** The ask Manager's Processes tab actually lets you see what your processor is doing. A process is a part of a program that is an executable file. This tab displays information on CPU and memory usage, page faults (an error that occurs when the program requests data that is not in

The Processes page shows users everything that the computer is running, both on the Desktop and in the background. This page is invaluable when you want to know exactly what your computer is doing.

virtual memory), handle counts (an internal to-do list for the computer), and a number of other parameters.

To sort the list of processes that are in the Processes tab, simply click the appropriate column heading. You can also reverse the sort order by clicking the column heading a second time. In addition, you can use the View menu in this tab to specify which columns you wish to display. To specify task

If your computer seems to be bogging down, the Performance charts will identify exactly what the performance drops might be and when they will occur.

column headings in the Processes tab, click the View menu and then Select Columns. Next, select the checkboxes that correspond to the process counters you want to appear as column headings, and click OK. For a list of these counters, see the sidebar "Process Counters."

Order of importance. One of the unique qualities of the Task Manager is its ability to change the priority of a running program. A priority is the order in which the computer allocates its resources. A top-priority program will run faster because the computer is allocating more resources to it.

To view the priority of running programs, select the Processes tab. Next, choose Select Columns from the View menu. In the Select Columns dialog box, check the Base Priority checkbox, and click OK. To change the priority of a running program in the processes window, right-click the program you want to change, point to Set Priority in the pop-up menu, and click the priority level you want. Changing the priority of a process can make it run faster or slower (depending on whether you raise or lower the priority), but it can also adversely affect the performance of other processes.

Singled out. The ability to end a process with Task Manager differs from the ability to actually end a program. A program may consist of one or more processes, or EXE files. You can end a specific process by clicking that process and clicking the End Process button. Remember that when you end a process you lose unsaved data.

If you end a system service, some part of the system might not function properly. A less problematic approach might be to end a process and all processes that are directly or indirectly created by it.

Do this by selecting the Process tab, right-clicking the process you want to end, and clicking End Process Tree. A Task Manager Warning dialog box appears to confirm that you want to end this process and any processes that are directly or indirectly started by it. For programs that use several interrelated programs at once, such as Microsoft's Outlook, End Process Tree would end all the main programs and subprograms related to the process.

The Task Manager makes it easy for users to assign a single process to a particular processor (this is only relevant for computers using dual processors). On the Processes tab, right-click the process you want to assign, click Set Affinity from the pop-up menu, and then click one or more processors. You need to be aware, however, that using the Set Affinity command limits

the execution of the program or process to the selected processor and might decrease overall performance.

■ **Performance Tab.** The Performance tab lets you see how hard your computer is working by showing you graphs for CPU and memory usage. The PF Usage bar graph shows the amount of memory being used by paging, and its complementary line graph,
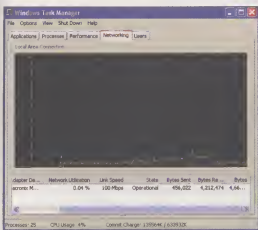
The Networking graph lets you keep a constant watch over any network activity.

the Page File Usage History, shows the amount of memory used by paging over time. At what rate the results are displayed in the graph depends on the value you select for the Update Speed in the View menu.

The CPU Usage graph tells you how busy your processor is by showing you the percentage of time it's working. If your computer is running at a slow pace, this graph might display a higher percentage. The corresponding graph is the CPU Usage History graph. This graph shows how busy the CPU has been over time. The sampling that is displayed in the graph depends on the value you select for the Update Speed on the View menu.

Aside from the graphs, the Performance tab also tracks for you the totals for Threads, Handles, and Processes that are running on your computer. Threads are parts of a program that can execute independently of other parts. A handle is simply a note for the computer that tells it where parts of programs are located in the

With these options, you can select just the information you want to monitor on the Processes tab.

memory. Taken together, these three pieces of information can help the experienced user gauge the activity level of their computer.

Memory tracker. Memory also has its place in the tab. The Commit Charge (designated with a K for kilobytes) is memory that is allocated to programs and the OS. Because some memory is copied to the paging file, called virtual memory, the value listed under Peak may actually exceed the maximum physical memory. The value for Total is the same as that depicted in the Page File Usage History graph. The Physical Memory, also called RAM, is the actual amount installed in your computer. In Physical Memory, Available represents the amount of free memory the PC can use. The System Cache shows the current physical memory used for paging.

The final statistic this window keeps track of is Kernel Memory. This memory is used by the kernel (the central part of the OS) and device drivers (programs that act as translators between the computer and attached hardware). The Paged information is the amount of data that can be copied to the paging file, thereby freeing up the physical memory. Nonpaged is data that remains resident in physical memory and will not be copied out to the paging file. If you click the View menu, you can change the CPU History graph in order to view kernel activity by clicking Show Kernel Times. Red lines on the CPU Usage and CPU Usage History graphs show kernel activity.

■ **Users Tab.** The Users tab displays, simply, the users who are logged onto the computer. The Users tab, however, is displayed only if the computer you are working on has Fast User
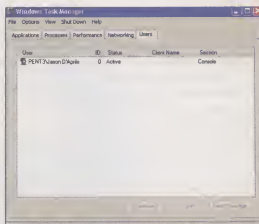
The Users tab keeps track of those people on the network who might be interacting with your specific computer. If you aren't connected to a network, then you will just see your own machine listed.

You can customize the Networking chart data and track the activity on a network that you find important.

Switching enabled and is a member of a workgroup or is a standalone computer. Fast User Switching is unavailable on computers that are members of a network domain.

Fast User Switching options can be found in the User Accounts folder of the Control Panel. Click Change The Way Users Log On And Off within the User Accounts menu and make sure the Use Fast User Switching checkbox is checked to enable the feature.

In the information chart on the Users tab, the User column shows the name of the computer and current username. ID shows a numeric identification for the current computer session. Status is the current state of a session, Active or Disconnected. Session displays the name of any sessions running on the computer.

Normally, your computer will be listed as Console, but if you are on a network, each computer connected to your machine will be listed according to its level and type of activity. Client Name lists any other computer that is remotely using that session. At the bottom of this window, you have the options to Log Off, Disconnect, or Send Message. However, you can only send messages if other users are listed.

■ **Networking Tab.** The Task Manager shows the contents of the Networking tab if you have a network card installed. This tab

provides a reference for monitoring your network bandwidth usage. The Task Manager does this by showing you a graph of the activity on the Local Area Connection.

You can choose the View menu and Network Adapter History to see the amount of information (in bytes) that have been sent, that have been received, or both. You can also select the Update Speed to change the rate at which the computer checks the activity to display on the graph.

If you're impatient, you can order the computer to Refresh Now. In the View menu, you can also Select Columns for viewing in the window below the graph. This is useful if you have more than one connection and would like to easily distinguish among connections. In the Options menu, you can select Auto Scaling of the graph, Show Cumulative Data, Reset the graph, and show the scale on the graph.

■ **More Uses, More Power.** WinXP's Task Manager opens up a whole world of information in an easy-to-access manner for users. With its added safeguards against crashes, you can shut down problematic programs without having to grind other activities to a screeching halt. Although most users will find much of the available information in the Task Manager to be fairly useless and foreign, power users will love the control these new options give them over their PCs. Regardless, the Task Manager is a big part of why WinXP is such a powerful, user-friendly, customizable OS. [S]

by Jason D'Aprile

Process Counters

In the Processes tab, you can choose from a number of different counters to sort what executable files you have running. Here is a list of those counters and their basic functions:

Base Priority lists the order that the processor schedules the threads of a process. Threads are parts of a program that can execute independently of other parts. A process is simply an executing program. You can use the Task Manager to view and change base priorities.

CPU Time lists the total processor time, in seconds, used by a process since it was started.

CPU Usage shows the percentage of time that a process used the CPU since the last update.

GDI (Graphical Device Interface) Objects lists the number of pieces of programming currently used by a process. GDIs are pieces of programming already written and saved in a DLL (dynamic-link library). DLLs are selections of programming that can be used as a foundation for programming for graphics output devices, such as printers and monitors. In short, they're collections of software parts that can be interchangeably used by devices attached to the PC.

Handle Count shows the number of a process' handles in a process' to-do list. A handle is a piece of code that uses a variable that denotes a memory location. That notation enables the program to access a section of a program that performs a specific task.

Image Name lists the name of a process as displayed in Task Manager.

I/O Other is the number of input/output operations generated by a process that are neither a read nor a write, including actions involving files, networks, and devices.

I/O Other Bytes is the number of bytes transferred in input/output operations generated by a process that are neither a read nor a write, but function as a control function.

I/O Reads displays the read input/output operations that are generated by a process.

I/O Read Bytes lists the bytes read in input/output operations generated by a process.

I/O Writes shows the number of write input/output operations generated by a process.

I/O Write Bytes shows the number of bytes written in input/output operations that are generated by a process.

Memory Usage displays how much memory (in kilobytes) that a current process is utilizing. The existing working amount is data that is currently resident in memory.

Memory Usage Delta shows the change in memory, in kilobytes, used since the last update.

Nonpaged Pool shows the statistics for the amount of data in the OS memory that never finished paging. Paging is a technique used by WinXP to increase operating speed by copying data from your storage device to main memory. When a program needs data that is not in main memory, the OS copies the required data into memory and then copies other data back to the disk. This memory used for copying is also called virtual memory. If your computer is running near the maximum amount of memory dedicated to paging, you can increase the memory allocation.

Page Faults lists the number of interrupts that have occurred when software attempts to read from or write to a virtual memory location that is marked as not present. A page fault amount is the number of times data has to be retrieved from disk because it was not found in memory. An invalid page fault occurs when the location of the data being requested is incorrect in the virtual memory. In this case, the application is usually aborted.

Page Faults Delta shows changes in the number of page faults since the last update.

Paged Pool is the system-allocated virtual memory that has been assigned to a process and can be used for paging.

Peak Memory Usage is the peak amount of physical memory used in a process since it was started.

PID (Process Identifier) is a numerical identifier that distinguishes a process while it runs.

Session ID displays the unique identifier for the Terminal Session that is using the process and is only available when Terminal Services are installed.

Thread Count lists the number of threads running in a process. Threads are parts of a program that can execute independently of other parts.

User Name tells the name of the current user of the computer and is available only when Terminal Services are installed.

USER Objects tells the number of USER objects currently being used by a process. These objects are windows, menus, cursors, icons, accelerators, monitors, keyboard layouts, and other things that are important to the interface.

Virtual Memory Size lists the amount of virtual memory committed to a process. □

Prepare For The Worst

The Backup Utility Can Be A Lifesaver

Hitherto, nobody gave the little Backup utility bundled into Windows much thought. It was puny and, until recently, wouldn't even recognize CD-R (CD-recordable) drives. The Backup utility in Windows XP, however, is another, much more pleasant, story. Accidental data loss accounts for millions of dollars in annual damages to businesses alone, never mind lost productivity in homes. Don't be a victim. Let's take a close look at WinXP's backup capabilities to see how you can best put these tools to work in safeguarding your important data.

■ **A Note About Home.** Contrary to popular opinion, WinXP Home does have a Backup utility; it just doesn't happen to be part of the default installation. Let's make sure we're all starting on the same page with Backup. If you're a WinXP Home user, follow these steps to get Backup installed from your WinXP program CD.

Insert the WinXP Home disc into your PC. Click Exit if WinXP presents you with a blue installation screen. Click the Start button, Run, and Browse. Choose your CD drive and find your CD drive's \VALUE ADD\MSFT\NT BACKUP folder. In the Files Of Type dropdown list, select All Files. Double-click the Ntbackup.msi file and click OK. Click the Finish button when the installation is completed.

You will now find the Backup utility on your Start menu by clicking Start, All Programs, Accessories, System Tools, and Backup.

■ **Get Into Backup.** When you open the utility, Backup starts you in the Backup Or Restore Wizard. If you don't want this to be the case, simply uncheck the Always Start In Wizard Mode option. Should you decide subsequently that you prefer the wizard, you can find it under the Tools menu, then click Backup Wizard. For now, click Next to proceed.

The next screen asks if you want to back up files and settings or restore a prior backup session. For now, let's assume the former.

Back Up Files And Settings is selected by default so just click Next.

The next screen asks what you want to back up and gives you four options. The first, My Documents And Settings, is a quick and easy way to store your work files and common Desktop and browser preferences, but this assumes that you make a habit of filing your work projects under the My Documents folder. Windows applications default to this, but many users save to alternative locations so be careful.

Everyone's Documents And Settings archives the same information but for all users with accounts on that PC, not just the user currently logged in. All Information On This Computer backs up exactly what it says, and it helps create a bootable floppy diskette for system recovery in case of OS (operating system) failure. The fourth option is Let Me Choose What To Back Up.

Save it all. Go ahead and click the third option and then Next. You'll notice you cannot select the backup type; this menu is reserved for options contained in Advanced Mode. Use the Browse button to select a location in which to save your files.

For security's sake, you don't want to save your data onto the same drive that you're backing up. So, say you're backing up your entire C: drive. You wouldn't want to save this onto the C: drive because the object is to keep C:'s data in a safe place in case the drive fails.

We recommend doing full backups either to a second hard drive, a tape drive, or a large-capacity optical drive, such as DVD-R

(DVD-recordable) or DVD-RW (DVD-rewriteable). Type in a name on this screen for your backup session.

The Wizard will now present you with a confirmation screen that summarizes all of your choices. If you need to make changes, use the Back button. If all is well, click Finish to commence with the Backup. Have a blank floppy diskette on hand to use as your system recovery disk.

When the choice is yours. If you select Let Me Choose What To Back Up, you'll be presented with a hierarchical Windows Explorer-type screen showing all of your system's files, folders, and network locations. You can select files or drives by putting a check mark next to them in the left pane of the window or you can select individual files by highlighting the folder on the left and checking each file as needed on the right. When done, the Backup Wizard proceeds as detailed above.

■ **Advanced Backup.** When you start Backup and click the Advanced Mode link, the resulting screen offers four tabs: Welcome, Backup, Restore And Manage Media, and Schedule Jobs. On the Welcome tab, you'll be greeted with buttons for running three advanced wizards: Backup, Restore, and Automated System Recovery.

The Backup Wizard should look familiar by now. The utility offers options to Back Up Everything On This Computer; Back Up Selected Files, Drives, or Network Data; and Only Back Up The System State Data.

The first two of these we've seen before. For that matter, backing up the System State looks nearly identical to backing up everything. The difference is that you're not archiving files and folders so much as taking a snapshot of the entire machine's Windows configuration. If you perform a System State backup and get hit with a nasty Windows corruption five minutes later, restoring the saved System State will revert to exactly how WinXP was when you saved the profile.

Going further. The significant difference in this Backup Wizard is the little Advanced button that appears in the bottom-right corner of the Completing The Backup Wizard screen. Click this, and you'll be whisked to the Type Of Backup screen, which features a single drop-down list offering five backup options.

Normal is straightforward; all of the folders and files you've selected will be stored as per usual, but the original files are marked as backed up, an important distinction against the following Copy option, which does not mark them as backed up. Incremental backs up only the selected files that were created or changed since the last backup. Differential does the same thing as Incremental without marking the files as being backed up. Finally, the Daily option only backs up files created or changed during the current day.

Why it's beneficial. The usefulness of these Advanced options is worth examining. Let's say you have 20GB of data to back up with a Normal session, everything from your Windows Registry to your spreadsheets to your MP3 files. Even with today's fast drives, it takes a fair amount of time to back up 20GB. You wouldn't want to do this every day; it's not necessary. Relatively little changes from day to day.

Perhaps you might have added or edited 20MB or 30MB of material. These small changes are really all that need to be saved once your Normal backup is safe, and this is what's captured when you do a Daily, Differential, or Incremental save.

Performing these smaller update sessions can save you a lot of time, although using this function will entail more work when restoring because you will have multiple backup sessions to juggle.
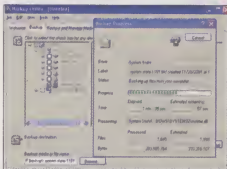
OS (operating system) corruption is one of the perennial banes of Windows users. Use the System State backup feature to keep your Windows system files safe. If one of your key files goes bad, a simple restore will have you and your computer back in business.

When restoring with Differential saves, you need the last Normal backup and the last Differential. With Incremental, however, you need the last Normal backup and every Incremental save done since then. This is why most users prefer to use regular Normal backups combined with Differential, rather than Incremental, interim backups. Daily is essentially a Differential backup, only capturing the current day's changes, making it perhaps less useful.

Finish the job. Once you've selected a backup type, click Next. The next screen is called How To Back Up, and here you'll find three more options.

The first, Verify Data After Backup, is especially useful if you're storing to old or otherwise questionable media that might be more prone to write errors. Verification simply does a second-pass analysis of the data to make sure it was recorded properly. If not, you'll receive an alert message. Use Hardware Compression, If Available crams more backup data into a tape by compressing it (the option is grayed out if you don't have a tape drive). Compression takes a little longer, but this can be a cost-effective option if you're low on tape capacity. Lastly, Disable Volume Shadow Copy restricts you from working with files currently being backed up. Make your choices here, if any, and click Next.

The Backup Options screen asks if you want to add (Append) your current backup alongside an existing backup in your target location or Replace the existing copy. If you select Replace, a subsequent option becomes available to Allow Only The Owner And The Administrator Access To The Backup Data And To Any Backups Appended To This Medium. This may be desirable for security's sake in an office setting. Click Next.

On schedule. The When To Back Up screen is where you start your scheduling, and this gets a bit involved. If you leave the default as Now, just go ahead and click Next. If you select Later, give the job a name, such as "June work files," and click the Set Schedule button.

Up pops the Schedule Job box with two tabs, Schedule and Settings. In the Schedule tab, you can use the Schedule Task drop-down list to select all kinds of flexible backup occasions, such as Weekly, Monthly, At Logon, and When Idle, the last being particularly useful for those doing critical work on large projects.

Depending on the option you pick, you can use a calendar interface to establish a start time to the schedule or note how many minutes the system needs to be idle before backing up

begins. Clicking the Advanced button reveals more options, such as end date and if the backup session should halt if it exceeds a certain time or duration. If you check the Show Multiple Schedules box on the Schedule tab, you can create numerous backup schedules for your job to best fit your work patterns.

The Schedule Job Settings tab yields more options, some of which are perhaps redundant. Enabling Delete The Task If Not Scheduled To Run Again is a way to save yourself from cleaning up scheduling clutter down the road. Pick Stop The Task If The System Ceases To Be Idle if system performance is important, but be careful to let the backups complete every now and then, too. Near the bottom of the screen are two power management options that are aimed at helping mobile users with limited battery lives.

When all of Scheduling is done, click Next, and Backup will ask you to select or confirm an account name and designate a password. Enter your information, click OK and Finish. Setting all of this information can be a chore, but this level of detail is part of what makes WinXP's Backup utility so powerful.

■ **Ready For The Restore Wizard?** After the complexities of a scheduled backup,
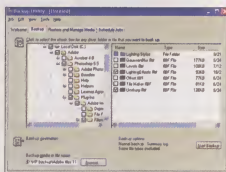
The Advanced Mode Backup tab gives you an easy-to-navigate, Explorerlike tree to browse so that you can quickly pinpoint the files and folders you want to archive. Note the file name also includes the file's location path, making it a snap to change destination folders.

restoring is a breeze. Whether you choose the Restore Files And Settings option from Backup's standard wizard or the advanced restore wizard makes no difference; they take you to the same wizard screens.

The first screen to concern yourself with is labeled What To Restore. This screen shows a list of the various backup sessions you've conducted and the location/name of the media onto which they've been stored. By clicking the

plus signs (+) next to items listed in the left pane, browse into item trees until you can put a check mark next to the specific backup session you wish to restore. (You can only select one session at a time.) Click the Next button.

At the following screen, you can either click the Finish button to commence the restore or the Advanced button for a drop-down menu listing three options for where you want the files restored.

Original Location is obvious enough. If you're in doubt about the integrity of your original location (perhaps diagnostic utilities are revealing a large number of corrupt sectors on your main disk drive), you may want to restore to an Alternate Location, such as a second hard drive or recordable CD. In case your backup entails a wide range of folders or locations, you may opt to restore files to a Single Folder to make the data easier to manage. (*NOTE: If you're backing up material from an NTFS [NT File System] volume, you want to restore only to an NTFS volume. Not doing this may result in lost data or features, such as data encryption.*)

And what about the Automated System Recovery Wizard found on the advanced mode's Welcome tab? This is simply a System State backup combined with a boot disk creation routine. The idea is that the boot disk helps you get into Windows from a cold boot and the backup reverts your Windows system files to whatever state they were in before calamity struck. There are no options apart from selecting a location and name for the backup file.

■ **Away From The Wizards.** Let's return to the four tabs on Backup's advanced home screen. We've covered the three advanced wizards found on the Welcome tab. Now, let's look at the Backup tab.

This is old news if you've mastered the wizard screens. The Backup tab's main screen lets you pick your files, folders, destination location, and backup name. Notice the Backup Options section, which may be labeled Normal Backup. Summary Log. Some File Types Excluded.

Perhaps you want an Incremental backup, not a Normal, and you don't need a summary log showing the backup session's play-by-play events. You can either set your
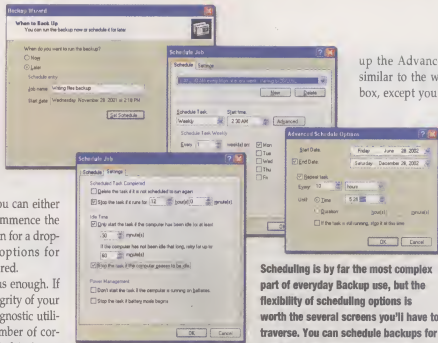
Scheduling is by far the most complex part of everyday Backup use, but the flexibility of scheduling options is worth the several screens you'll have to traverse. You can schedule backups for specific times and events and also instruct Backup to halt if the system becomes active with other tasks.

preferences on subsequent screens or go immediately to the Tools menu and click Options. Select the Backup Type tab. Here you can choose any of the five backup types. Similarly, the Backup Log tab lets you pick Detailed log, Summary, or no log at all. In the Exclude Files tab, you'll see that some Windows system files are excluded by default, but you can also add a customized list of files to ignore either for the current user or all users.
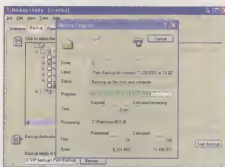
When time is of the essence, be sure to consult the progress indicators Backup displays while working. You can see the time remaining, files left to transfer, and the amount of data processed and still remaining.

Set to go. When you're ready to proceed, click the slightly misnamed Start Backup button. This actually brings up the Backup Job Information screen, which gives the Append or Replace choices, as well as name fields for the job and destination media.

You'll also see a Schedule button (the same screens you mastered in the wizards section). Underneath this, the Advanced button pops

up the Advanced Backup Options box, similar to the wizard's How To Back Up box, except you can also select one of the five backup types here and two additional options. Back Up Data That Is In Remote Storage is a nifty feature for managed machines that have moved infrequently used files into deep storage; placeholder files are saved that reference the stored material.

WinXP Professional users have access to the Auto-atically Backup System Protected Files With The System State option. This adds substantially to the backup job but captures system files, as well as boot files for greater security.

Now, either click the Cancel or Start Backup buttons, which really will start the backup this time.

For WinXP Home users, the Restore tab is almost a carbon copy of the advanced restore wizard and doesn't need elaboration. Just click the Start Restore button to bring up the Confirm Restore box and, click OK. On this box, however, you'll see an Advanced button. This brings up a set of five options for WinXP Professional users. These are truly advanced options for that administrating corporate networks. For more details, consult Backup's help files.

Last of all, the Schedule Jobs tab presents you with a monthly calendar. If you double-click a date, the utility launches the Backup Wizard, exactly as detailed above, only the start date is filled in when you reach the Scheduling screens.

■ **No Beeping Noises Necessary.** And that's it. Novices may tire of Backup's many options and endless dialog screens. But believe us: All it takes is one drive failure to understand why taking the time to put Backup to work for you is worth every minute invested. [LS]

by William Van Winkle

Digital Profiling
How To Use Shared Folders

One of the more talked-about aspects of Windows XP is the expanded functionality of the User Profiles feature. With User Profiles, the main user of a computer (or any user who has been assigned administrator level of access) can establish separate identities, called profiles, on the computer for any other person who has access to the computer.

Once a profile has been established, the user can customize it with her own wallpaper, screen saver, Internet favorites, program menu, and more. Each profile also comes with its own My Documents folder so each user can keep her documents separate from those of other users. In effect, User Profiles lets multiple users of a PC enjoy personalized computing experiences as if they had their own separate computers.

■ **Communal File Pool.** So what happens when one user *wants* another user to have access to a particular file or another but doesn't want her rummaging through the My Documents folder to find it? Or even more importantly, what if a user wants to share a file located in My Documents but has other documents in the folder that he or she does not want others to see?

WinXP has created a central file-sharing folder, Shared Documents, that is specifically designed to facilitate the sharing of documents, music files, and graphics among multiple users on a single PC. It's the one-stop shop where users can go to see if others before them have left files for them to view. Set up Shared Documents with a personal subfolder for every user, and organization becomes even easier.

Imagine the possibilities. You have just written a to-do list for an upcoming camping trip with your two roommates. You are headed out the door to work, and you need each of them to view it in your absence. Instead of printing multiple copies and leaving them where you hope they will see them, you simply share it on the computer. When each person comes home and logs on to the computer, the list is there, waiting in the Shared Documents folder.

Now extend this same concept to a son sharing homework with his parents, a wife sharing digital photographs with her husband, and a teenager sharing a favorite new music download with his brother. Just as User Profiles turns one computer into many, the Shared Documents folder ties those many virtual computers into a single, internal network.

Shared Documents can also let users share files that would otherwise be hidden from other users. However, private (hidden) My Documents folders for each user are not a default in Windows. If you are using User Profiles and do not have hidden folders, see the sidebar in this article, "Share & Share Alike."

■ **Share Files & Folders.** Sharing files with other users on your computer is a simple, drag-and-drop process. WinXP has integrated the Shared Documents folder into the main view pane of Windows Explorer so you can easily move files and folders into the Shared Documents folder no matter where they reside on your system.

When you share files and folders, Windows physically moves them into a different folder on your hard drive, C:\DOCUMENTS AND SETTINGS\ALL USERS\DOCUMENTS. It does not merely create a shortcut there. In the instructions given below, you will be instructed to drag a file or folder into the Shared Documents folder.

Share & Share Alike

The Shared Documents folder (and User Profiles, for that matter) does not automatically prevent one user on a system from viewing the contents of another user's My Documents folder. That means one user could also accidentally erase or alter an important file. In addition, any user files that need to be hidden should be stored in My Documents.

Only a few folders on the system can be private: My Documents, Desktop, Cookies, Favorites, and Start Menu. All other folders on the hard drive are visible to all users at all times. In order to hide individual My Documents folders from other users, the User Profiles must be set up properly:

- The PC must be running NTFS (NT File System). This is a high-security file system that originated with Windows NT but is now an option with Windows XP, as well.
- The users must be set up with limited access profiles. Users with computer administrator access can always see all folders.
- The user's My Documents folder must be set up as private in Folder Properties.

If your User Profiles do not support hidden My Documents folders, refer to Windows Help And Support (which is found in the Start menu) for more assistance. Keywords you will find helpful are NTFS and User Profile. ❑

This moves the original file to the new location. If you want to copy the file or folder instead, which preserves the original in its prior location, hold down the CTRL key as you drag the file or folder.

If the file or folder you wish to share is located in the My Documents folder: Double-click the My Documents icon on your Desktop to open the folder. In the view pane, look for a section titled Other Places. There, you will find Shared Documents. Click the file or folder you wish to share and drag it until it is on top of the Shared Documents wording or icon. Drop it into the folder, and WinXP moves the item to the Shared Documents folder. This makes it available to anyone with a profile on your computer.

Do not drag your files and folders to the item that reads Share This Folder, which is found under the File And Folder Tasks pane. This option is used to share folders over the Internet or with other members of a network and is beyond the scope of this article.

If the file or folder you wish to share is located elsewhere on the computer and you know where the file is located: Open My Computer. Double-click the drive the file is located on. If the contents of the drive are hidden, under System Tasks on the left, click Show The Contents Of This Drive. When the contents of the drive are displayed, continue double-clicking through successive layers of folders until you see the file or folder you want to share. Click the file or folder you wish to share and drag it as described in the previous paragraph.

If you do not know the location of the file or folder you wish to share: Open Windows Explorer by right-clicking the Start button and selecting Explore. Click Search in the Standard Buttons toolbar. In the left pane, click the option that describes your file and type the file name in the resulting field. Choose My Computer from the drop-down list beneath the file name dialog box and click Search. (If it doesn't appear, click Use Advanced Search Options below the field.) When Windows retrieves the file, click Yes, Finished Searching. You can then click the file and copy it into the Shared Documents folder as described previously.

■ **Multimedia Magic.** Just like My Documents, Shared Documents has two specialized folders that are designed to help users organize and enjoy their multimedia files. In Shared Documents, they are referred to as Shared Music and Shared Pictures. These folders are set up with special menu tasks that let users play sound files and view, print, or store graphics files.

When you move or copy sound or graphics files to the Shared Documents folder, place them in the appropriate folder (Shared Music or Shared Pictures), and users can enjoy these intuitive features. Windows will not automatically place sound and graphics files into these folders; you must handle that yourself.

■ **Safety Net.** When you share a file with other users, unless you specifically designate it as read-only, other users who view a shared file can modify it, as well. In some cases, this may be your intention. Using our to-do list example, you may want each of your roommates to add their own ideas for the trip. But in cases where you do not want someone altering the shared file, you can mark it read-only.

Shared Documents, as with My Documents, offers special folders that are designed for manipulating sounds and graphics.

This can be particularly important if you have shared the original file, rather than a copy. With read-only files, users can make changes, but they cannot save them over the existing file. They will be forced to save the file with a new name or to a new location. (*NOTE: This includes the person who created the file, as read-only is not user-specific.*)

To mark files as read-only, use Windows Explorer to open the folder in which they are stored. Then, right-click the files you want to restrict and select Properties from the pop-up menu. Click the checkbox at the bottom titled Read-Only and uncheck the checkbox marked Archive. Click OK.

Any user can change a file's properties to remove the read-only restriction; therefore, using this designation will not prevent malicious alteration of a file. If you want to preserve files without other users altering them, save the files in My Documents and make sure they are marked private as described in the sidebar.

■ **The Center Of Information.** Shared Documents is a simple, central clearing house for files that need to be shared between users on a computer. When you use it, remember that by default it is a tool of convenience only. Until and unless you enable private folders in User Profiles, everything on your computer has the potential to be a shared item. Refer to our sidebar, and you'll learn how to enhance your user's privacy and make the most of the Shared Documents folder. When everyone's files are private, then Shared Documents becomes what it is intended to be: a limited access window to a secure, multi-user system. [LS]

by Jennifer Farwell
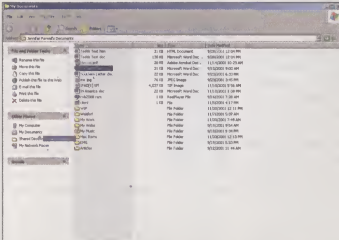
It's simple to share files in Windows XP. Moving or copying files into the Shared Documents folder is a simple drag-and-drop procedure.

Their Sounds, Your Order

Create CDs Using WinXP Tools

Previously, you needed applications such as Adaptec's Easy-CD Creator or Ahead's Nero Burning ROM to record information to your PC's CD-R (CD-recordable) or CD-RW (CD-rewriteable) drive. In both versions of Windows XP, however, you can dispense with third-party apps entirely and burn discs straight from My Computer or Windows Media Player. This may not offer any additional functionality over older approaches (in fact, WinXP's CD-burning capabilities lag behind on several points), but it is considerably more intuitive and time-efficient than most add-on applications.

■ **Burn Data Step By Step.** After you insert a blank CD-R or CD-RW, WinXP automatically pops up a dialog box offering two options: open a writeable CD folder using Windows Explorer or take no action. Creating a CD folder essentially turns the disc into a recordable volume, just like a formatted hard drive partition or floppy diskette. Once this is done, you can write any sort of folder or file to the CD, be it music, photos, or spreadsheet data. If you're confident that you plan to choose the same option every time you insert a piece of blank CD media, check the Always Do The Selected Action box before proceeding.

With the disc volume now open, you can begin using Windows Explorer to drag and drop (or cut/copy and paste if you prefer) items for burning to CD. Note that at this point, you're not actually writing to the disc. Instead, you're copying files and folders into a buffer zone called the staging area. For the technically curious, the staging area is located at: *Drive_letter:*\DOCUMENTS AND SETTINGS*user name*\LOCAL SETTINGS\APPLICATION DATA\MICROSOFT\CD BURNING.

You can also add files and folders to the staging area by right-clicking them, then selecting Send To from the pop-up menu and choosing Writable CD. These options are also available under the File menu.

Plenty of room. WinXP doesn't restrict the total amount of data amassing in your staging area. If you select 10GB of data to burn to a single CD, Windows won't alert you to the problem until you try to start your writing session. Be aware that most CDs have a 650MB capacity, some have 700MB, and a few even go up to 850MB. If you need to remove items from your staging area, that's no problem. Simply drag and drop the unwanted entry from the CD folder or right-click the item and choose Delete. To eliminate all of the items in your staging area, click the Delete Temporary Files link in the CD Writing Tasks area.

When your list of files and folders looks complete, click the Write These Files To CD link, also in the CD Writing Tasks area. If you happen to be looking at a list of volumes rather than the contents of staging area, right-click the CD burner volume and select Write These Files To CD.

In either case, the CD Writing Wizard appears and prompts you to give the disc a name or select the default name, which is the current date. Click Next and your data will begin burning to CD. When finished, the Wizard will pop up another screen asking if you want to burn the same files to another disc. Check the option box for Yes if you do; otherwise, just click Finish to end your burning session.

Second-degree burn. Once you burn your staging area to disc, should you find you still have plenty of room left on the CD, feel free to add more files and folders. WinXP supports multisession burning, which means you can conduct as many write sessions as you like until the disc's capacity is reached. If you happen to add a file or folder with the same name as an existing one, the newer version will be used and the older version ignored.

If you do start a staging session after the first burn, you'll find the files area of your CD's Windows Explorer volume separated into two areas: Files Ready To Be Written To The CD and Files Currently On The CD. This should be fairly self-explanatory. Deleting temporary files removes "ready to be written" entries. If you try to delete or move a burned file from a CD-R, Explorer will alert you that the item is classified as read-only, although it will still let you continue until it generates an error message saying that the file cannot be deleted or moved.

Erase/rewind. Burning files to CD-RW is much the same as to CD-R. You'll notice the addition of an Erase This CD-RW link in the CD Writing Tasks area for wiping your rewriteable media clean with one click (well; two or three, counting the CD Writing Wizard that prompts you to confirm your erasure request). Of course, you do have the ability to delete or move files already burned to CD-RW media.

If you interrupt the staging process, the CD Writing Wizard will appear and offer three options: Write The Staging Area To The CD Media Now, Save The Files And Write Them Later, or Delete The Files In The Staging Area. If you pick the first choice, make sure a disc is
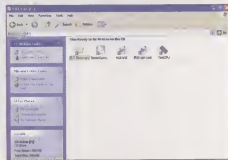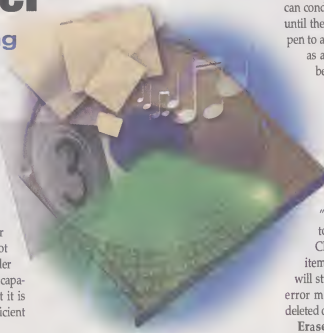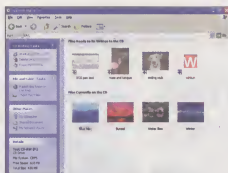

Everybody makes mistakes, but the staging area in Windows Explorer helps ensure you don't make as many with your data. Here you can see the files and folders in our CD drive's staging area. A click of Write These Files To CD actually sends the cached content out to disc.

loaded. Also be careful not to use the second option frequently without completing the burn-to-CD process because cached files can stack up and consume valuable space on your hard drive.

■ **Burn Music.** If you insert a music CD into a PC running WinXP, you'll be prompted to play the Audio CD, open the volume/folder with Explorer, or do nothing. (This is a change from older versions of Windows that would autoplay music CDs in the default player.) If you open the folder, Windows Explorer's Tile View will show each of the tracks on your disc. The simplest way to add these songs to your staging area is by highlighting one or more tracks and clicking the Copy This File link in the File And Folder Tasks area. A Copy Items dialog box appears to help you select a target folder. Browse to your recordable CD volume and click Copy.

The situation is slightly different if you insert a data CD containing music files, say in MP3, WAV, or WMA formats. You still have the Copy This File link available under File

Compiling a CD from your music files? Use Windows Media Player 8 to quickly build a song list, then click Copy To CD Or Device to whip out your custom compilation.

And Folder Tasks, but now you also have the ability to right-click files (not folders) and select Copy To Audio CD. This opens up Windows Media Player 8 in its Copy To CD Or Device window and adds your track to a Playlist. Note that this same pasting to Windows Media Player process works on music files located on any system volume, not just CDs. In fact, from within Windows Media Player, if you click the Media Library tab, you can right-click any track listed and select Copy To Audio CD to add the file to your to-be-burned Playlist.

You can change the order of tracks within your Playlist by right-clicking a file and choosing Move Up or Move Down. If you decide not to burn some of the tracks on your Playlist to CD, merely uncheck the boxes next to their names or

Thanks to Windows XP's multisession support, you can burn one set of files or folders to a CD-R (CD-recordable), then return at any time in the future to burn more. You can do this as many times as you wish until the disc is full or, in the case of CD-RW (CD-rewritable), a virtually unlimited number of times, provided you delete files to make room. In this illustration, you can see contents already on the CD-RW along with staging area files waiting to be burned.

right-click the files and select Delete From Playlist. When your songs are all in order and you're ready to go, click the Copy Music button in the top-right of Windows Media Player.

■ **Options & Other Concerns.** Although the CD-burning features in WinXP are fewer than most third-party apps, there are still a few options to juggle.

In My Computer, right-click the icon for your CD-R drive and select Properties. In the resulting Properties dialog box, you'll see four tabs, the last of which reads Recording. Click this. The first box for Enable CD Recording On This Drive is checked by default, and you'll likely want to leave it this way.

The second option is a pull-down list for which hard drive volume you want used as a storage area for your image (the image is considered the data that is created from the contents of your staging area before the items are actually written to CD media). The use of a temporary image helps ensure high-quality results during writing because all of the files and folders are gathered into a single location on a high-speed drive. This, in turn, helps prevent the dreaded buffer underruns that result in failed write sessions and useless "coaster" discs. In general, it's a good idea to put your image on a drive with the best compromise between high performance and low use. You wouldn't want to be copying your image to CD-R while demanding that the same drive perform other tasks.

The next option has you select the burn session's write speed. If you have a newer CD-RW

drive with "BURN-Proof" or equivalent technologies to prevent buffer underruns, you should always use the fastest setting. However, if you notice that write sessions keep generating errors, try scaling back the speed to a lower setting. One or more components in your PC may not be up to the task of full speed burning.

The last option is to Automatically Eject The CD After Writing. For music copying, this is a small time-saver, but if you're doing multisession data writes, you'll probably want to disable this feature.

■ **Limited in Scope.** WinXP's CD burning capabilities sport several omissions. For example, you can't duplicate bootable CDs (such as Windows program discs) and you can't test a

Windows XP does give you some control over your CD burner's properties. In the Recording tab, you can set which drive is used to construct the "image" that gets burned to disc, as well as the write speed. If you keep getting failed write sessions, use this option to lower your speed and reduce the risk of buffer underruns.

write session before actually performing it. As MUSICMATCH spokesperson Jennifer Roberts points out, "For the true music fan, the ability to burn all music-related files—song, lyrics, band photos, cover art, and more—can be a great advantage." WinXP doesn't offer this sort of enthusiast-level functionality, but it is an excellent shortcut for handling your everyday burning tasks. **IS**

by William Van Winkle

All The Info Without Extra Calories

Get The Most Out Of The Search Companion

Windows has always included commendable searching tools, but with the advent of Windows XP, users now have an incredibly powerful tool to find information, files, folders, and other data on their computers, a network, and the Internet.

The Search Companion is adaptable to virtually any search need and packed with features and options that let users customize their Companion in a myriad of ways. Whether you want to find a Word document, a misplaced file, or even an old friend on the Internet, WinXP has the tools to help make your quest for information easier and faster.

■ **Start Your Search.** WinXP's Search Companion is substantially different from the searching tools in previous versions. One of the new features is the Companion's ability to keep a running index of all the files on your PC, which makes searching through your computer much faster. For fun, you can even activate an animated companion to help guide you through the searching process.

Using the Search Companion is a simple process. Just click the Start button and click Search. Alternatively, press F3 to instantly bring up the Search Companion. When the Companion window pops up, you'll have an array of search options at your disposal: Pictures, Music, or Video; Documents (Word Processing, Spreadsheet, etc.); All Files And Folders; Computers Or People; Information In Help And Support Center; and Search The Internet. You can also Change Preferences for the Search Companion.

Point of attack. Just click the category you want, and you can begin to refine your search. From here, you'll have to enter the name of the file or subject that you're looking

for. If you want to make the search through your computer, or other computers on the local network, more specific, there are several options to define the search parameters for where the Search Companion will look: multiple hard drives, just one computer, or all the computers on the network. We explain these options in detail later in the article. After you've entered all the necessary information, simply click Search and wait for the results.

After the Search Companion finishes looking for you topic, you can save that specific search criteria for future reference. Click the File menu and choose Save Search.

Either use the name that Windows attaches to this search or come up with a name of your own and click Save. Unfortunately, WinXP only saves the search parameters and not the results that it compiles. Consequently, if you load a saved search later, you will have to click the Search button again to get the new results.

Screen overfloweth. If your search yields too many results, then you'll need to add additional search criteria to narrow the field. To do this, simply click the Use Advanced Search Options button. With these extra options, a search can be limited according to the last time a file was modified, particular words or phrases in a file, the size of the file, and the locations where the computer will search.

Below the Advanced Options is a drop-down menu that contains More Advanced Options. These options mainly center on searching for files in the system directory and browsing through hidden files and folders and subdirectories.

Making sure that the Search Subfolders option is checked is a good idea because files are often located away in folders within other folders. Another occasionally useful option here is the ability to make your search keywords case-sensitive. That way, if you're looking for a file or piece of data with a proper name in it, the Companion will specifically search for those capital letters in the word.

After a search finishes and you're left with a long list of files in the window, you can choose to sort the results by the date of their last modification, file type, name, and size. Sorting in this manner can greatly reduce the time it takes to sift through a lengthy list of search results. Below that are options to view the results by a thumbnail shot, with their file details, and as tiles with partial details.

The asterisk's wild. When you're searching for a file but aren't sure of the whole name, wildcard characters can help immensely. Essentially, these take the place of characters of which you are unsure in the keyword. There are two kinds of wildcard characters: the asterisk (*), and the question mark (?). The asterisk is used as a substitute for zero or more characters.

For instance, if you searched for comp*, you might get results ranging from comp and compile to computer. If you know what file type you're looking for, you can add that extension after the wildcard character. So, for the example above, if you typed **Comp*.doc**, the computer would only search for document files that started with the letters comp.

The question mark replaces only one letter instead of a possible string of letters. This means that if you typed Comput?.doc into the Search Companion, the results might bring up Compute.doc but wouldn't display Computer .doc. This is especially useful for those times when you can't remember the exact spelling of a word. You can use more than one question mark in a search word.

■ **Specific Searches.** Searching somewhere besides your own computer mainly involves the same steps as a local search. Because you are looking for data and information beyond your PC, however, such a search might seem slightly imposing. Thankfully, following some simple steps can make any search a quick and easy process.

Network search. To search for a file on another computer, open the Search Companion and choose Computers Or People. Next, select the A Computer On The Network option. Enter the name of the computer you wish to search and click Search to find it. If you don't enter a name here, the Companion will display all the computers available on the network. Select Search This Computer For Files, and you'll be able to search that machine exactly as you would your local PC.

Internet search. Performing Internet searches used to be relegated exclusively to your friendly neighborhood browser, but thanks to WinXP's integration of search functions, you can scour the Internet within the Search Companion as easily as you can find a file on your computer. After opening the Companion, click Search The Internet and type a question in the text box that appears. WinXP's new Internet search lets users actually type a question in plain English, and the default search engine (MSN) will find relevant Web pages.

Changing search engines is simple. Click Change Preferences and select the Change Internet Search Behavior link. In the Internet Search Behavior section, the Search Companion lists for you several search engines that you can change your default to. Also in this section, Search Companion gives you the opportunity to switch between the classic searching mode, which only queries the search engine and spews out a list, and the new Search Companion mode (the default choice).
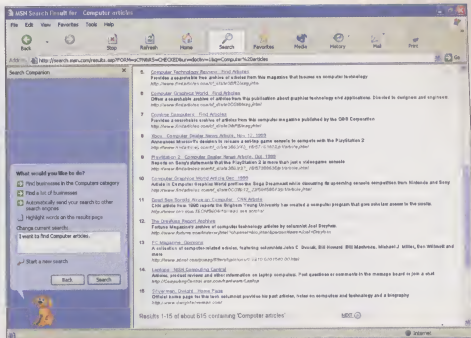
Unlike standard searches that require keywords, Internet searches are easier and more user-friendly with the Search Companion because it lets you state your queries in the form of a question.

The Search Companion mode provides customized hints that will help users narrow down their search results. When you type in your search sentence, the Search Companion will offer refinement suggestions. Each search brings up different tips for narrowing the subject down, and once you've found an article that you want to browse, you can even have the computer highlight search keywords by clicking that option, located below the refinement suggestions.

A little help and support. If you're looking for some help with a particular problem, the Search Companion's ability to search WinXP's Help And Support Center can be an invaluable tool. Click Information In Help And Support Center in the Search Companion panel, and the Help And Support Center opens in a different window.

Click the Support icon in the button bar to go to the Help And Support Center's Support page. From here, you can access the Remote Assistance option (Ask A Friend For Help), check out support newsgroups established by Microsoft (Go To A Windows Web Site Forum), and even request support from Microsoft (Get Help From Microsoft).

The Help And Support Center also offers offline assistance that gives valuable information about your computer, such as My Computer Information, which displays data about the hardware and software you have installed on the PC. In addition, there's the Advanced System Information and System Configuration Utility, both of which can make troubleshooting easier. For more information on the Help And Support Center, see "A Lot Of Help" on page 126.

People pointer. The Search Companion's ability to find people quickly can be of great help when looking for a specific contact in your address book. Unfortunately, this only applies to

The Search Companion interface offers a variety of step-by-step options for power searching, making it easy to use for both novices and advanced users.
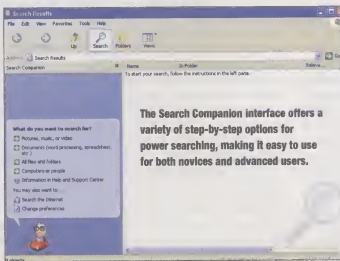
Outlook's Address Book. Users of other e-mail programs, such as Eudora, will have to use the search abilities built into those specific programs. The Companion's ability to find people and contact information goes far beyond just the address book, however. You can search a variety of Internet-based directory services as well.

Open the Search Companion, then choose Computers Or People. Next, click People In Your Address Book. The Find People dialog box will appear. From here, you are given the opportunity to enter a variety of data on the person you want to find. The Search Companion lets you search by name, e-mail address, physical address, phone number, and a miscellaneous category called Other.

The default place to search is the Address Book. After you have typed in the relevant data in the People category, click Find Now. If you want to search one of the directory services, click the down arrow in the Find In drop-down menu. In addition to the Address Book, you'll see choices that include Yahoo! People Search, InfoSpace Internet Directory Service, and others, letting you locate people all over the world from the Companion's simple interface.

■ **The Indexing Service.** A major new feature in the Search Companion is the Indexing Service. When enabled, this program indexes the files on your computer whenever the system is idle, which can make searching faster. The Indexing Service uses a special filter to read chosen documents so that it can find whatever information you are searching for quickly. Documents the service will index include text files, data from Microsoft Office 95 and higher, HTML (Hypertext Markup Language), Internet mail and news, and most other common document formats.

The Indexing Service is designed to run continuously in the background and is completely automatic. This feature is most effective for users with thousands of files to keep track of on their computer so normal home users are unlikely to see any tremendous benefits from it. The program can occasionally slow a computer down, thanks to its constant

hard drive access. If you notice any problems in performance, it's probably best to turn the Indexing Service off.

To access the Service, click the Change Preferences option in the Search Companion, and then select With Indexing Service. Here, you can turn the service on and off and access the advanced options for the program. Clicking the Advanced options brings up another window. If you double-click the System icon, a sub-menu opens that has a folder for Directories and Properties.

The Directories folder contains your hard drives and Document And Settings folders. If you double-click any of the folders in this list, you can access their properties within the service, including the ability to leave them out of the indexing process.

■ **Preference Matters.** As with most aspects of WinXP, the Search Companion is highly customizable. When you start the Search Companion, click Change Preferences to see a list of options. The first two options revolve around the animated search companion. If you want to turn these cute little guides off, select Without An Animated Screen Character.

If you don't like the current choice of character, choose With A Different Character, and you can select from a list of up to 11 different animated icons. If you click Don't Show Balloon Tips, the Search Companion won't bring up any more of the occasionally intrusive pop-up tips for how to search. Below that is an option to turn the Auto-Complete on and off. When this option is on, Windows will look at the search data you are typing and, if it recognizes the word from a past
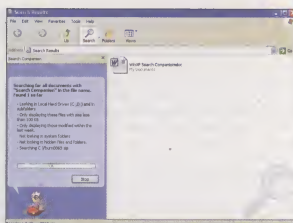
As the Search Companion combs the hard drive for requested files, it shows the icons for each document it finds.

For a little extra fun, you can choose from a variety of animated search companions to keep you company while the Search Companion is fetching information for your request.

entry, will automatically offer to finish the word or phrase.

Once you have the hang of searching and want more advanced, user-definable search options, you can turn off the search assistance abilities of the Companion.

From Preferences, click Change Files And Folders Search Behavior. The Standard option is Search Companion's default selection and offers systematic assistance to guide you through a search. The Advanced mode gives you the ability to manually enter information, such as the date of modification, location, size, and more advanced name information. If you want to change all the options back to their original states, setting the Change Files And Folders Search Behavior selection back to Standard will reset your preferences.

■ **Go Find It.** No matter what kind of information you're searching for, the WinXP Search Companion is a simple, yet powerful, way to find it. It's easy to use and offers plenty of tips and help for novices, while being customizable enough for more advanced users. Step-by-step instructions built right into the program let you choose exactly what to search for and how you want to do it. The ability to use plain English for Internet searches is sure to prove useful for anyone questing for data across the wilds of the World Wide Web. **LS**

If you decide that you want to use another search engine to investigate the Internet with, the Search Companion offers a variety of engines for you to choose from.

by Jason D'Aprile

Make It Yours

Try These 10 Tasks To Optimize Your Experience

With every successive version of Windows, the good folks at Microsoft add features designed to further enrich their customers' computing experiences. This is especially true with Windows XP, which incorporates a totally new interface, enhanced support for multiple users, built-in multimedia support, and much more.

So what if you don't like your OS (operating system) exactly the way Microsoft designed it? WinXP provides a variety of resources to enable users to make minor (and in some cases, major) alterations to their systems. Although you can't change core system functionality without employing third-party add-ons (and potentially messing up your system), you can give the OS a little nudge here or there.

Several of the stories in this issue detail procedures and tips for customizing WinXP on a grand scale. In this article, we will detail some of the lesser-known changes that you can make to your new system, such as altering the volume settings or changing the display font.

Some are workhorse modifications; others are more whimsical in nature. All are united by a common objective: to enhance your enjoyment of an OS that is being touted as the most substantial upgrade of Windows since Windows 95 blasted out of the gate nearly seven years ago.

1 Alter System Volume Settings. In WinXP, there are several ways for you to adjust the volume settings for sounds played on, or recorded by, your system. First, you can adjust the overall volume level of sounds generated by your system. This will affect not only the volume of music and other sounds going into your speakers, but also that of sound being played during videoconferencing or voice chat over the Internet.

Second, you can adjust volume settings for the various sound devices on your computer, such as the CD player and microphone. You can choose, for example, to have music from CDs play louder than music played on Windows Media Player. This can help minimize differences between default playback levels of these devices. You can also mute certain sounds altogether or adjust the volume level of just your speakers, which will affect only the volume of the sounds you hear and not those that are recorded to a CD or sent across the Internet.

All of these modifications are made from the Sounds And Audio Devices Properties window. From the Start menu, select Control Panel and click Sounds, Speech, And Audio Devices. Click Change The Speaker Settings. The Sounds And Audio Devices Properties window will appear.

If you have several windows open and you do not see the window, try minimizing the other windows or moving them aside. In our tests, this dialog box did not automatically move to the foreground after it opened.

Adjust the overall volume of sounds generated by any sound devices on your system. With the Sounds And Audio Devices Properties window open, click the Volume tab. Move the slider bar under Device Volume. Click the Mute checkbox if you want to mute the sound completely. This adjusts the volume level of any sound generated by your sound card. It also automatically raises your speaker volume correspondingly.

Adjust the volume of specific sound devices. With the Sounds And Audio Devices Properties window open, click the Volume tab. Under Device Volume, click the Advanced button. The Volume Control window will appear. You can also open the Volume Control window directly from the Sounds, Speech, And Audio Devices Control Panel by clicking Advanced Volume Control in the left pane or by selecting the Audio tab in the Sounds And Audio Devices Properties dialog box and then clicking any of the Volume buttons.

This window displays the settings for either playback or recording. The playback window appears by default. In it are a number of individual sections, each of which enables you to control the volume and balance of a particular output device. Each also has a mute checkbox that, if checked, suppresses that particular sound device entirely.

Depending on your sound card, you may also have bass and treble controls for certain devices. To see if you have these, click the Options menu and select Advanced. If you can control your bass and treble settings, a button that reads Advanced will appear at the bottom of the relevant section.

The number of sections that appear when you open this window depends upon your particular system configuration and capabilities. By default, most users will see sections for Volume Control (manages the overall volume and balance of all devices), Wave (controls the Windows Media Player), SW Synth (controls WinXP's built-in MIDI [Musical Instrument Digital Interface] file synthesizer), CD Player (controls the CD output), Aux and/or Line In (controls sound from external inputs, such as DVD players or video cameras), and PC Beep (the internal beeps that your PC generates occasionally).

You can make all of the sections appear, or disable any that you don't want to see, by clicking the Options menu and choosing Properties. You can check or uncheck the various boxes. (If you enable the controls for a device that you do not have, it will not have any effect on your system.) Here, you can also toggle back and forth between playback and recording controls by clicking the Playback and Recording checkboxes under Adjust Volume For.

WinXP has a digital enhancement feature that may disable the CD Player volume controls and instead place control of CD player volume and balance with the WAVE control. If this is the case with your system, refer to the Microsoft Knowledge Base (http://support .microsoft.com), article Q296615, to decide if you want to disable this feature.

Adjust the speaker volume only. With the Sounds And Audio Devices Properties window open, click the Volume tab. In the Speaker Settings section at the bottom, select Speaker Volume. You can now adjust the volume levels for either the right or left speaker. This option enables you to control speaker volume from your Desktop.
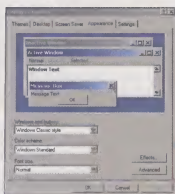
Windows XP lets users to specify both the type size and style for text-based items such as Desktop icons and display windows.
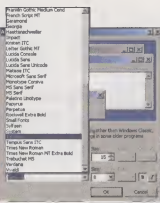
However, the volume range is relative to the settings of your speaker's onboard volume knobs. If they are turned down to a very low setting, the highest Speaker Volume setting will not be as loud as if they are turned all the way up. Likewise, if the knobs are turned all the way down, you will not be able to obtain any sound at all using the Desktop controls.

2 Create A Custom Sound Scheme. By default, WinXP assigns specific sounds to system events, such as e-mail arrival, Windows Logon or Logoff, and Windows exit. If you choose, you can change these sounds and add sounds to other system events, such as the minimizing of a window or the completion of a print command.

In WinXP, these sound collections are called schemes. You can name your custom scheme and call it up whenever you wish. You can also create multiple schemes with sounds that relate to different themes, such as summer and Christmas, and switch from one scheme to another as desired.

Create a custom sound scheme. From the Start menu, select Control Panel; click Sounds, Speech, And Audio Devices; and click Change The Sound Scheme. The Sounds And Audio Devices Properties window will appear. The Sounds tab should be selected by default; if it's not, click it.

Other than the Windows Default scheme, WinXP provides a variety of sound schemes for you to choose from. Click the drop-down menu under Sound

Scheme to review them. You can use one of these as the basis for your custom scheme.

Scroll through the Program Events window and click a system event to which you want to assign a sound. When you select a system event, the sound currently assigned (if any) will appear in the Sounds drop-down menu. Click the menu to select another of Windows default sounds for the system event, or click Browse to navigate to the location of another scheme stored on your system. Any WAV file can be used as a system sound.

Unless you have previously stored or downloaded sounds, you may not find many additional sounds on your system. The FreeSite (http://www.thefreesite.com) is an excellent resource for free WAV files. Save any files you download to the My Music folder for easy retrieval. Continue in this fashion until you have changed all the desired system event sounds.

Once you have completed the new scheme, click the Save As button under the Sound scheme menu and give your new scheme a name. Click OK to exit the window.

3 Alter Windows Display Fonts. The size and type style of text on your Desktop is set automatically, but you can change these settings. Any font stored on your hard drive can be used, and the size can be modified from very small (6 point, smaller than a tenth of an inch) to very large (24 point, more than a quarter-inch tall).

Changes to both type size and font are made through the Display Properties Control Panel. To open it, go to the Start Menu, select Control Panel, click Appearance And Themes, and select Display.

Change the display font size. There are two methods to accomplish
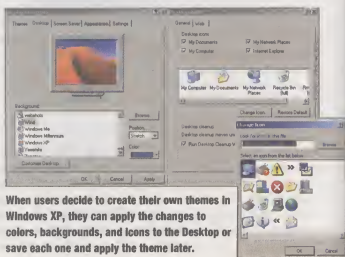
When users decide to create their own themes in Windows XP, they can apply the changes to colors, backgrounds, and icons to the Desktop or save each one and apply the theme later.

this: One enables users to change the size of fonts for all "appearance" items (save Desktop icons) and the other lets users change the font size individually for any display item with text (including Desktop icons).

The first option supports only three font-size settings: Normal, Large, or Very Large. The second option enables the selection of specific point settings. To change your display font from Normal to Large or Very Large, click the Appearance tab on the Display Properties window and click the Font Size drop-down menu at the bottom. Make a selection and look in the top window to see how the new size will look. Click Apply if you want to try it on your entire system. This option is useful for those who have very high-resolution monitors who find that the text on menus and the Taskbar is too small to read easily.

To specify a specific font size (in points), click the Advanced button. Click the drop-down menu under Item and select an option whose font size you wish to change. In the next section, under Size, click the drop-down font-sizing menu and choose a new size. Two sizes larger than the default (usually 8 point) will make a noticeable difference.

Change a display font style. This option is adjacent to the Size option discussed in the previous section. From the Appearance tab in the Display Properties window, click Advanced. Click the Item drop-down menu and select an option whose font style you wish to change. In the next section, under Font, click the drop-down font menu and choose a new style. Keep in mind that fancy fonts can be hard to read.

4 Change The Screen Resolution.

On your PC, the screen resolution of a monitor determines how large (or small) windows, icons, text, and other graphic features appear by default. Resolution is directly proportionate to color depth: The

lower the resolution of a monitor, the more colors it can display. High-end graphics cards support both high resolution and good color depth and are frequently set, by default, to very high-resolution settings.

With high resolution (at least 1,024 x 768 pixels), the user can fit many items on his Desktop, but text may be hard to read. Conversely, low-end cards do not enable users to see all possible colors at high resolutions. You may wish to change your resolution to enlarge or reduce the size of Desktop items or to increase the number of colors your monitor can display.

Change the resolution. To change your screen resolution, go to the Start menu, select Control Panel, click Appearance And Themes, and click Change The Screen Resolution. The Display Properties window appears with the Settings tab selected.

Look for the slider bar at the bottom-left that appears under Screen Resolution. When you move the slider bar, the sample display in the window above the slider bar changes as you move it back and forth. This indicates how your Desktop real estate will change.

As you move the slider bar, the Color Quality setting on the right side may also change. If you are lowering your resolution, your color depth may increase, which shouldn't cause problems.

If you are raising it, however, your color depth may decrease. If you have an older card, you may have to sacrifice color depth in exchange for increased resolution. Unless

Windows xp now offers a shortcut that enables users to quickly add (or remove) programs to their Start menu.
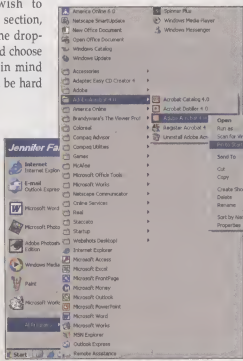
you run graphics programs or advanced PC games, you won't notice much difference between 16-bit (65,535 colors) and 24-bit or 32-bit (16.7 million colors) settings. If you see a 256-color setting (which is 8-bit), you should avoid it, as you will probably notice degradation in color quality.

5 Make Your Own Desktop Theme.

In WinXP, schemes control a specific aspect of your Desktop experience, such as sound or color, but themes control the entire environment: the Desktop background, sounds, icons, and other elements. Unless a user has installed a specialized thematic add-on, such as Microsoft Plus!, which was introduced with Windows 98 and is available for $39.95, themes in WinXP are no more than collections of Desktop settings. Even so, they can be handy if you want to save a group of settings (such as a particular combination of wallpaper, screen saver, and specialty icons that apply to a certain holiday or event).

Unfortunately, there is no central theme properties window that enables you to click your way to a new, custom theme. Instead, you'll have to visit the individual properties settings window for each element you want to change. You can base your new theme on an existing one, however, by using an installed theme as the starting point. Then, you can modify as many elements as you wish.

Select an existing theme. From the Start menu, select Control Panel, Appearance And Themes, and Change The Computer's Theme. In the Themes tab of the Display Properties window, choose a theme to use as a starting point.

Unless you have already created or downloaded additional themes, your options will be Windows XP (the new look and feel), Windows Classic (the old Windows look), My Current Theme, and My Favorite Theme. My Current Theme and My Favorite Theme will be the same as your current theme unless you have made previous modifications. Once you've selected a point of departure, visit any of the properties windows listed below to make modifications.

Display Properties. From the Desktop tab, you can modify your background picture and color and select whether your Desktop picture will be tiled across the screen (if it is too small to fill the space), centered, or stretched to fit. For the background picture, you can choose from any of the graphics on the list or browse to any BMP (bit map) file stored on your system.

Customize your icons by clicking the Customize Desktop button; click an icon to change and click Change Icon. Choose from one of the icons that appear or browse to find other icons. The Shell32.dll file, which is located in C:\WINDOWS\SYSTEM32, is an excellent resource for icons.
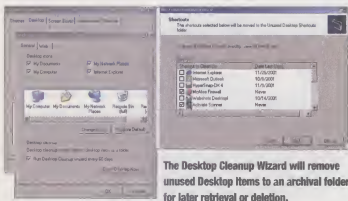
The Desktop Cleanup Wizard will remove unused Desktop items to an archival folder for later retrieval or deletion.

Also in the Display Properties window, you can change your screen saver by clicking the Screen Saver tab. The Appearance tab lets you change your Windows color scheme. If you click its Advanced tab, you can modify your text size, type style, icon spacing, and item sizing.

Appearance And Themes Control Panel. The Appearance And Themes Control Panel also lets you customize the look and feel of your Desktop. Select Mouse Pointers in the left panel to bring up the Mouse Properties window. Click the Pointers tab to change how your mouse pointer looks on-screen.

Finalize it. After you have made the desired alterations, return to the Display Properties Control Panel and click the Themes tab again. Click Save As. Here, you need to give your new theme a name and click OK. The new theme will be applied until you change it again.

6 Edit Start Menu Items. One of the easiest ways to place programs, files, and folders at your fingertips without cluttering up your Desktop is by customizing the Start menu. By default, Windows places a number of items on the Start menu: user profile items (such as My Documents and Favorites folders), shortcuts to various ease-of-use options (such as Search and Help), and shortcuts to programs that you use frequently. You can customize this list considerably, adding programs and recently opened documents and modifying or deleting items that WinXP has placed on the menu by default.

Add a program to the Start menu. Locate the program on the Start menu or the Desktop or in Windows Explorer or My Computer. Right-click the program you want to add to the Start menu and select Pin To Start Menu from the pop-up menu. To remove an item, execute this same procedure but choose Unpin From Start Menu.

If this option is not available, you are not using the WinXP Start menu. Instead, you're using the Classic Start menu, which does not offer this capability. Right-click the Start button, choose Properties, and click the Start Menu tab. If you want to modify the existing Classic Start menu, click the Customize button to the right of Classic Start Menu. If you want to revert to the new WinXP Start menu, click the button in front of Start Menu.

Make additional changes to the Start menu. From the Start Menu tab, click the Customize button to the right of Start menu. Click the Advanced tab and, under Start Menu Items, select or deselect elements from the long list that can potentially appear on the Start menu. At the bottom of the window, click List My Most Recently Opened Documents if you would like WinXP to add these to the Start menu.

7 Use The Desktop Cleanup Wizard. One of the options available to you in the Display Properties window is the Desktop Cleanup Wizard, which moves unused Desktop items to a folder on the hard drive entitled Unused Desktop Shortcuts. This feature is handy for those who frequently store items on their Desktops, such as downloaded program files, that they will eventually delete.

Run the Desktop Cleanup Wizard. From the Start menu, select Control Panel, Appearance And Themes, Display, and select the Desktop tab. Click the Customize Desktop button. When a new window opens, click the General tab and look at the bottom-left for Desktop Cleanup. Here, you can check a box that instructs WinXP to run the Desktop Cleanup Wizard Every 60 Days (this should be enabled by default). You can also instruct WinXP to run the wizard immediately.

8 Use The Scheduled Tasks Feature. Scheduled Tasks is an event organizer that you can use to instruct WinXP to perform specific operations automatically on a one-time or ongoing basis. It is perfect for such operations as checking your e-mail 15 minutes before you come home from work. (Your e-mail program must be set to automatically connect to the Internet and check e-mail for this to work.)

You can use Scheduled Tasks to open programs or documents or to run scripts that you have created. Scripts are batches of commands that automate a specific process, such as password-protected user logon. If you wish to learn more about scripts in WinXP, visit http://msdn.microsoft.com/library and type in the keywords **Windows Script**.

To create a new Scheduled Task. From the Start menu, click All Programs, Accessories, System Tools, and Schedule Tasks. The main task window will open. Double-click
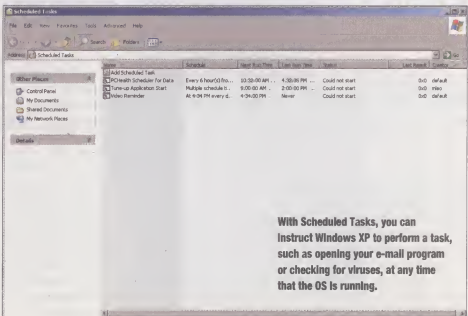
With Scheduled Tasks, you can instruct Windows XP to perform a task, such as opening your e-mail program or checking for viruses, at any time that the OS is running.

Add Schedule Task to start the Scheduled Tasks Wizard. Click Next and the wizard will display a list of programs. Choose the one you want to automate or, if you want to open a document, run a script (or execute a program that is not listed, choose Browse and navigate to the desired file and click Open).

Windows will suggest a name for the task; you can either accept it or create your own. In the same window, you should choose a time interval for the task to be performed. Click Next. If the interval you select is not time-dependent, you will be prompted to choose a date and time for the task to be executed. After you do so, click Next.

The next window requests a username and password. The user name dialog box will be filled in already; type in your user password if you have one. Click Next. When the next window appears, click Finish. Click Open Advanced Properties For This Task When I Click Finish first if you want to evaluate other task options.

Your new task will appear in the main task window and should be executed without a hitch. You can modify or delete the task later through this window as well. Right-click the task in question and choose Delete (to eliminate the task) or Properties (to modify it).

9 **The Task Manager.** The Task Manager has been present in Windows for several versions but has become more sophisticated with each release. Many users know it as the tool that terminates programs that have frozen (allowing the system to continue operation), but it is much more. From within Task Manager, you can see which programs are running, monitor your system performance and network activity, and see which users are currently logged on to your computer.

To open Task Manager. Press CTRL-ALT-DELETE simultaneously. The main Task Manager window will open. Click the Applications tab to see which programs are running. If you were having system problems, you'll be able to see which program was not responding and terminate its operation from this window.

Click the other tabs (Processes, Performance, Networking, and Users) to review the additional information Task Manager provides. Here, you can see which programs are using your system memory, how efficiently your central processor is operating, and more. Much of the information may seem inscrutable, but there may be a time when
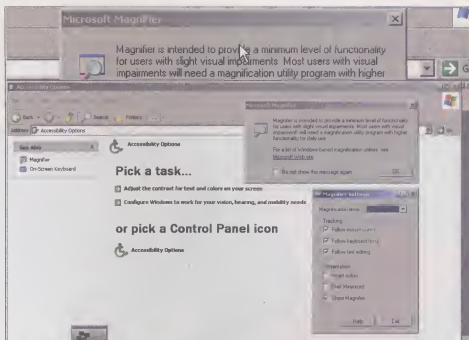
The Windows XP Magnifier enables a user with impaired vision to enlarge any portion of his Desktop so he can view it up-close in a special window at the top of the screen.

you will require it for troubleshooting. You can also alter many of your system settings (such as the way windows are arranged on your Desktop) from the menu options across the top of the Task Manager window.

10 **Use The WinXP Magnifier.** Microsoft has gone to great lengths to assist impaired users who may have trouble seeing screen items, hearing system sounds, or using the keyboard and mouse.

If you experience any of these difficulties, you can use the Accessibility Options (accessed through the Accessibility Options Control Panel) to help you modify your system to overcome these difficulties.

If you like your settings and don't need to alter them, but you want to lend a hand to sight-impaired guests who use the system, turn on the WinXP magnifier. Magnifier opens a special window across the top of your screen that displays a magnified view (up to 9x magnification) of the area you're pointing to. Move the mouse, and the area being magnified will move, too.

Microsoft's Magnifier proportionally replicates all aspects of the display perfectly, including all user actions, such as text being highlighted. However, it slightly reduces mouse responsiveness so be prepared to wait a second or two for your pointer to reappear after you move it.

Access the Magnifier. To enable the Magnifier, click the Start menu, choose Control Panels, and click Accessibility Options. On the left side, click Magnifier and the magnification window will open.

Click the bottom of this window and drag it up or down to reduce or enlarge the amount of the screen that you give over to Magnifier. When Magnifier opens, a Magnifier Settings window will open, as well, and stay open until you exit Magnifier. Here, you can alter the magnification level, and disable tracking if you want a certain area to be magnified no matter where you move your mouse. To exit Magnifier, click Exit in Magnifier Settings.

■ Looks Just Like You (Want It To). WinXP has been both praised and criticized for strong "ease of use" orientation that simplifies operation for users, but also takes away a measure of control. In reality, WinXP is a highly customizable system—if you know how to make the changes. With the tips we've detailed in this article, you should be well on your way to creating an operating environment that reflects your personal preferences and style. [US]

by Jennifer Farwell

A Lot Of Help

WinXP Sports A New & Improved Support Center

Although you might not compare online help with your local Super Kmart or Wal-Mart, one-stop shopping accurately describes the new Windows XP HSC (Help And Support Center). The much-improved HSC integrates traditional online help with articles, tours, system tools, new support features, and seamless links to Web-based information, such as the Microsoft Knowledge Base and the WinXP Compatibility and Update Web sites. By making all of this information accessible from one place, the HSC is truly one-stop shopping for all of your help and support needs.

The HSC was initially introduced in Windows Me. In addition to putting a lot of options in one place, the HSC in WinXP improves upon its predecessor with a better Search tool, a new Remote Assistance tool that lets a knowledgeable person using WinXP connect to your computer for troubleshooting, and links to Windows Newsgroups, online discussion boards centered on specific topics.

Along with its beefed-up content and enriched features, the HSC in WinXP sports a new, updated look. The help window has a familiar Web browser look and feel, making the HSC very easy to use and navigate. To access the HSC home screen and view its components, click Start and Help And Support. The home screen includes:

- A browser-like navigation bar with buttons such as Back, Home, Index, and History.
- A search function that searches not only the help system but also Microsoft's online Knowledge Base.
- The Pick A Help Topic section, which is essentially a table of contents.
- The Ask For Assistance section, where you can choose to have someone else remotely access your computer or get support from your computer's maker.

- The Pick A Task section with links to Windows Update, compatibility information, System Restore, and Tools that display information about your computer.
- A Did You Know? section that has dynamic (changing) links to WinXP-related articles.

To learn more about the HSC's features and content, let's take a closer look at each of these components, starting with the navigation bar.

■ **Navigate Like A Web Browser.** The HSC navigation bar, which displays at the top of the screen, includes buttons that look, feel, and function like Internet Explorer, Microsoft's Web browser. In fact, the button icons in the HSC are identical to the icons in IE6, the version of IE shipped with WinXP. As with IE, the HSC's Back and Forward buttons move you through the help screens you've viewed. You can also click the house icon to return to the HSC home screen.

If you find an especially useful help page or article that you want to refer to later, you can add it to a favorites list, similar to IE. Click the Favorites button to display the Favorites screen. Your list of existing favorite help pages displays on the left. To add a help page to the list, simply click the Add To Favorites button. To remove an item from your favorites list, right-click the item and click Delete.

The HSC also includes a History button. When you need to find a page that you've viewed, click the History button. The History screen displays a list of the help resources you have recently visited, including Web-based articles and information. You can scroll through the History list, click a page, and then click the Display button to view the page. If it turns out that that's not the page you wanted, click the History button to redisplay the History screen.

In addition to the browser-like buttons, the HSC navigation bar includes buttons labeled Index, Support, and Options. The Index button displays a topical index of help information, in alphabetical order. You can scroll through the index or type in a keyword. The Index is especially useful for finding information when you don't have success using

the Search tool or looking through the contents on the HSC home screen.

The Support button is to the right of the History button on the navigation bar. In the Support section, you can initiate a Remote Assistance session, ask Microsoft for help (if you bought WinXP directly from Microsoft), or connect to a Microsoft Newsgroup. Because the Support screen is extensible (expandable), your PC's manufacturer may also include their support information here. A See Also section, which displays below help topics throughout the HSC, provides helpful cross-references. On the Support screen, See Also includes links to My Computer Information and Advanced System Information.

The Options button on the navigation bar lets you customize the navigation bar buttons, the font size for your help text, and your search settings.

■ **Search For Help.** The HSC includes an enhanced, customizable Search tool. Rather than just searching for certain words in the online help, the Search tool now conducts multiple searches within a single search request. After you type your keywords and click the green Start Searching button, headings for three different search results display: Suggested Topics, Full-Text Search Matches, and Microsoft Knowledge Base. To see the results, simply click in the heading.

Under the Suggested Topics heading you should find the most relevant results. These are resources that contain your search terms in a special keywords section of the document. The Full-Text Search Matches heading is below Suggested Topics. These results contain your search terms somewhere within their content.

Online help. If you're connected to the Internet, the Search tool also scans the Microsoft Knowledge Base (http://search .support.microsoft.com/kb), an online library of technical support articles and self-help tools. This is a nice feature, but the results are often unrelated to the information you are looking for. However, you can improve upon the relevance by making some adjustments in the Search Options.

To view and edit the Search Options, click the Set Search Options link that resides below

the Search box. Here you can limit the number of results (the default is 15) and specific options for each type of search. Under the Microsoft Knowledge Base options, you'll get the best results if you change the type of articles to search from All Microsoft Search Topics to Windows XP.
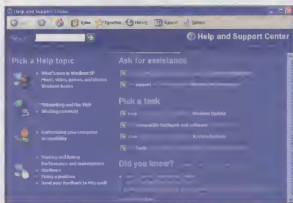
The Help And Support Center home screen serves as your starting point. To view it, click Help And Support from the Start menu.
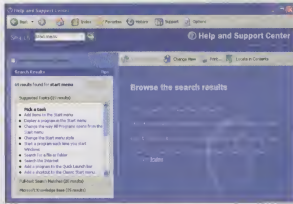
The Search tool presents to users three different categories of results. To view a list of these results, click the heading name of the category that you want to view.

Narrow it down. In addition to customizing your search options, you can also refine your results by performing another search within a list of previous search results. This option automatically displays whenever the help screen contains a list of search results. Note that this feature applies to the Suggested Topics and Full-Text Search results and not the Microsoft Knowledge Base articles.

You can also narrow your search to a specific help topic. When you select a help topic from the HSC home screen (for example, What's New In XP), you can then search within that topic. A checkbox for searching the contents of that topic displays right below the Search field. The box is checked by

default, so be sure to uncheck it if you want to do a full search.

■ **Pick A Help Topic.** The Pick a Help topic section, at the HSC home page, is essentially a table of contents for WinXP help. The first section highlights what are probably the three most popular help topics: What's New In Windows XP, Music, Video, Games, and Photos, and Windows Basics.

The information in What's New In Windows XP is definitely worth a look. If you don't have access to training or other documentation about WinXP, be sure to review this section to find out more about new features, such as user accounts and the new Windows display options.

Also worth your time are the reports in the subsection Windows XP Articles: Walk Through Ways To Use Your PC. The walkthroughs provide very good information in an easy-to-read format. They also include illustrations and screen shots that you can click to enlarge for a better view. Graphic elements enhance any type of learning and are normally missing from traditional online help.

The remaining topics in the Pick A Help Topic section cover the main tasks and concepts important to using WinXP. The topics include Networking And The Web, Working Remotely, Customizing Your Computer, Accessibility, Printing And Faxing, Performance And Maintenance, Hardware, Fixing A Problem, and a link to an online form that lets you Send Your Feedback To Microsoft.

How to get helped. When you select a help topic from the home screen, the HSC displays a list of main topic headings on the left. A main topic heading marked with a plus sign (+) contains additional subtopics. Click the name of the topic to display the subtopics. In addition, the See Also section displays at the bottom of the topic list. Based upon the topic you're viewing, See Also provides links to additional information, such as the Windows Glossary and Tools.

The actual help content appears on the right. Several buttons are displayed above the content, including Add To Favorites, Change View, Print, and Locate In Contents. Most of these buttons are self-explanatory, with the exception of Change View. When

you click Change View, the left side disappears so that the table of contents does not display. This is helpful if you want to display the HSC screen alongside another program. Clicking Change View again makes the table of contents reappear.

■ **Ask For Assistance.** Ask For Assistance provides links to several support options. The first item under the Ask For Assistance section links to the new Remote Assistance feature.

If you're experiencing problems with your computer, you can give a knowledgeable person permission to connect to your computer directly. Once connected, the person using the remote computer sees what is on your screen. Also with your permission, the remote machine can take control of your computer. Then, the remote operator can use the remote computer's keyboard and mouse to navigate on your computer. If you've ever spent hours on the telephone with a support person troubleshooting a problem on your computer, you know the value of this feature.

When you select the Remote Assistance option in the HSC, you can choose to send an invitation to someone else to connect to your computer. The person you invite must use a computer with WinXP installed and an Internet connection. The invitation is routed via Windows Messenger or e-mail, and the Remote Assistance Wizard walks you through the entire process.

After you send the invitation, you can use the HSC to monitor and manage its status. You and the person who plans to connect to your computer may want to search in the HSC for Q300546, a Microsoft Knowledge Base article that provides a comprehensive overview of Remote Assistance.

The second link in the Ask for Assistance section goes to support, which shows the same information that displays when you click the Support button in the navigation bar. From here you can access Remote Assistance, ask Microsoft for help (if you bought WinXP directly from Microsoft),

or connect to a Microsoft Newsgroup.

■ **Pick A Task.** The Pick A Task section of the HSC home screen is a combination of other useful resources that you may need. This section offers links for retrieving and installing Windows updates, finding compatible hardware and software, using System Restore, and locating Tools for information about your computer.

Windows Update. With WinXP, you can choose to automatically update your computer, or you can choose to update your computer manually. Updates include fixes and enhancements for WinXP and the software bundled with it, such as IE and the Windows Media Player. Updates for device drivers that work with WinXP and your installed hardware are also included.

To access the update settings, click the Start button, Control Panel, Performance And Maintenance, and System. Then click the Automatic Updates tab to choose whether to automatically update your computer. By automatically downloading updates, you are assured that your computer will always be current.
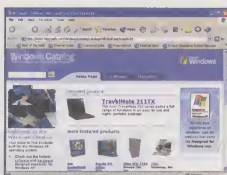
If you prefer, you can retrieve updates from the Microsoft update Web site by clicking the Windows Update link under Pick A Task. Search for updates by clicking the Scan For Updates link. The first time you search for updates, a prompt to install the Windows updating software displays. Choose Yes to the prompts to install the software and continue. When the update retrieval process is complete, click the Review And Install Updates link.

This displays a list of updates, a summary of what's included in each, links to additional information, and buttons to select or deselect

the updates you want to install. Critical updates, such as security fixes, are flagged so that you know their high level of importance.

Hardware and software. The second item under Pick A Task is Find Compatible Hardware And Software For Windows XP. This link takes you to the Microsoft Catalog Web site (http://www.microsoft.com/windows/catalog). Here you can check for software or hardware that's compatible with or designed specifically for WinXP. For example, if you want to purchase a digital camera but are not sure what brand to buy, you can browse the products on the Microsoft Catalog Web site.

To look at a list of products in a specific category, click the Hardware or Software tab and then select from the categories on the left. In our digital camera example, click the Hardware tab, point to Cameras, and click Digital Still Image. A table shows manufacturers, products, and Windows status (compatible with or designed for WinXP). You can sort the columns by clicking the column headings. Microsoft recommends selecting a product that has a status of "Designed for Windows XP."

If you already know the manufacturer and/or name of the product you are interested in, the quickest way to find its WinXP compatibility is to search for the name of the product in the Search Windows Catalog field. For example, if you want to install Adobe Photoshop, you can search for this product and display a table showing its compatibility with WinXP.

System Restore. With the System Restore feature (the third option under Pick A Task), you can set your computer back to its state as of a certain restore point, without losing your work or e-mail records. With WinXP, your computer automatically creates periodic restore points. If you are planning to upgrade or install new software that might disrupt your system, you can create your own restore point before you perform the upgrade or installation.

Tools. The final option, Use Tools To View Your Computer Information And

At the Windows Catalog site (http://www.microsoft.com/windows/catalog), you can check for WinXP-compatible software or hardware.
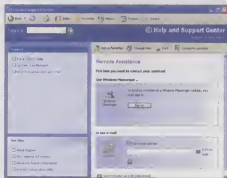
Can't do it yourself? With the new Remote Assistance, you can invite another person using Windows XP to connect to your computer and help you troubleshoot a problem.

Diagnose Problems, is a centralized collection of the various utilities available in WinXP. Tools include My Computer Information, System Restore, Remote Assistance, Diagnostics, and Disk Defragmenter.

Some of these options, such as the Advanced System Information and System Configuration Utility, are intended for use by support professionals who are working with your computer.

■ **Did You Know?** This section contains a dynamic list of articles from the Microsoft Knowledge Base, the Windows XP How To Web site, and the HSC. These articles are generally small in scope, such as How To Tune Into An Internet Radio Station and How To Change Users Quickly Without Logging Off First. The articles break down the information into easy-to-digest bits. We read both of these articles and discovered some new tricks, such as pressing the Windows and L keys together to quickly switch between user accounts.

In the Did You Know? section, we noticed one inconsistency when compared to the other components of the HSC that display Knowledge Base and other Web-based articles: The Web-based resources in Did You Know? do not display in your help screen. Instead, the Web-based information opens in a separate Web browser window.

Because the IE6 browser interface and the HSC interface are so similar, this is confusing at times. You may find yourself clicking the Home or Back buttons thinking you'll go back to the HSC home screen, only to realize you are looking at the article in your Web browser.

Despite the possibility of some confusion, the Did You Know? feature is definitely beneficial to your WinXP learning curve. You can quickly pick up hints, tips, and concepts that you might not otherwise learn. And because the information is only a click away, you are more apt to open it and read it.

■ **Helpfulness & Usability.** Now that we have examined the HSC's features and content in more detail, let's find out whether it does the job.

Although placing all of the help and support resources into a one-stop shop is convenient, the true measure of the value of the HSC "shop" is definitely the quality of its goods and whether you can find what you need. Does the HSC have the information you want? Is the information you're shopping for easy to find?

To find the answers to these questions, we put the HSC to the test by attempting to find the answers to three questions. Here's what we found:

If you're thirsty for a little Windows XP knowledge, the View More Headlines screen, under the Did You Know? section, makes it easy to quickly learn about WinXP and pick up some hints and tips along the way.

How do I change the picture associated with a user? Let's assume you don't like the picture that WinXP selected for your user account. How do you change it? To find out, we first tried clicking Customizing Your Computer and then searching for picture. The Suggested Topics matches were not what we needed.

However, the Full-Text Search Matches included the relevant topics Apply A Unique Picture To A User's Account and Change A User's Picture at the top of its results list. **Result:** Information found in one attempt, instructions easy to follow and accurate.

How can I add programs to my Start menu? We found the answer to this question the first place we looked, under Customizing Your Computer and also in the Personalize Your PC walkthrough tutorial. **Result:** Information found in one attempt, instructions easy to follow and accurate.

How do I use the CD burner to back-up files? First, we tried searching for "CD burner" from the home screen, but the only matches were some nonapplicable Knowledge Base articles. Next, we tried the Index. Under the entry for CD, we found an entry

for CD Burning. This topic gives general information about using Windows Media Player. This was not what we wanted, so we went back to the Index and clicked Creating CDs. This gave us a link to instructions for copying files to a CD, which we successfully ran by following the instructions. **Result:** Information found in three attempts, instructions easy to follow and accurate.

Ease of use. As the test questions illustrate, the HSC offers multiple ways to find information. Most of the content you need to get started with WinXP is upfront and easy to access.

If you don't see what you're looking for under Pick A Help Topic, you can rely on either the Search tool or the Index to find what you need. The browser-like interface is intuitive because nearly everyone is familiar with using Web browsers.

We did note a few minor shortcomings. When you click a help topic with a plus sign (+) to expand it and then print that help topic, the topics revert back to their compressed state. Also, other versions of online help in Microsoft products include a handy Show All feature that expands all of the compressed topics with one click. This feature was not present in the HSC in WinXP.

If you're using a dial-up Internet connection, the HSC's Web-based resources and content could be cumbersome to use. For example, if you want to include Knowledge Base articles in your Search or access WinXP compatibility information, you must connect to the Internet.

■ **Open For Business.** With its new features, enhancements, and one-stop shopping format, the Help And Support Center is open and ready for business. The next time you have a WinXP-related question, need support, or have a few minutes to learn something new, stop by the Help And Support Center and pick up what you need. LS

by Carmen Carmack

A Working Agreement

Microsoft & Software Makers Try To Curb The Frequency Of Incompatibilities

Sometimes it can be easy to forget that a computer is a very complex machine, full of components and programs which all have to work together and share resources in order to function properly. In fact, after regularly using a properly functioning computer for any length of time, people start getting comfortable and consider the whole thing to be about as simple to operate as a toaster. But just try and upgrade that nicely oiled machine with a new OS (operating system), and you'll see how quickly it's possible to get burned.

■ **Why Doesn't It Work?** The job of an OS is to keep an eye on the interaction among the various components of the computer and decide which ones are able to work in harmony. But no OS can recognize and work with every single piece of hardware or software that exists. It's hard to imagine that every piece of software or new hardware component should be required to work with every computer system in existence. There are so many products out there that no manufacturer can plan for every use that a person might have. As a result, users can experience compatibility problems when they purchase and install new programs or components, especially when attempting to upgrade to a new OS.

OSes aren't perfect. It's not really surprising that an OS could generate a lot of compatibility problems, either, when you keep in mind the huge number of hardware and software combinations that are available in any home system. All it takes is one funky mouse driver or some outdated multimedia software to cause compatibility problems during an OS upgrade.

That's why many professionals suggest that users wait a little while after a new OS is released to let the company fix the problems and create patches and updates for the OS to help as many components work as possible. Of course one would hope that, in the case of a new OS, as many compatibility issues as possible are fixed before the product ever makes it onto the shelves.

Things are going to change. But with the release of the Windows XP OS, Microsoft representatives have plainly admitted that users with old devices and legacy software are going to experience a lot of compatibility issues.

Apparently the company reached a point where they thought it was more important to concentrate on the quality of the product to ensure that it doesn't crash rather than spend an exorbitant amount of time developing compatibility fixes for every application or device under the sun.

That being said, the average computer user who doesn't rush out and buy upgraded software or new hardware components every time something new comes along will probably end up running into a few program compatibility issues when attempting to upgrade to WinXP.

■ **Crossed Wires.** It's frustrating to purchase an expensive OS upgrade and then discover that to make your computer function the way it did before the upgrade, you have to spend additional time and sometimes money to upgrade other third-party applications on your system, such as a DVD player, CD burner, or virus protection software.

That's essentially what has happened with WinXP. Many applications that came standard on previous computer systems have generated compatibility issues and have been rendered completely useless when paired with the OS upgrade. Most companies offer patches to their products, for sale or for free on their Web sites, to make their programs work in WinXP, but that doesn't eliminate the stress computer users can feel when struggling to improve their system with an upgrade.

Things could be worse. As if the possibility that some of your everyday software

won't function properly after an upgrade, the worst-case scenario is a much bigger nightmare. Consider that a number of computer users who have posted complaints on various Internet message boards have discovered that after upgrading to WinXP, their modems or Internet connection software stop working altogether. The compatibility problems that were presented after the upgrade were apparently so severe that it rendered the system's modem and connectivity software inoperable. (In the case of this writer, the upgrade to WinXP actually deleted a saved password from a dial-up connection, resulting in a frantic search for the right password to access an account.)

Keep in mind that the typical way to get a patch to make the whole system work properly after an upgrade such as this is to download it. The bigger issue here is that these people weren't able to completely upgrade their computer and ended up stuck with broken programs and almost no way to remedy the situation. In fact, the only way to get a working system under this worst-case scenario is to uninstall WinXP, download the needed fixes from another computer, or buy another software application or modem.

The biggest upgrade. Because of all the potential hassles involved with upgrading to a new OS, most computer experts advise novice computer users to simply go out and purchase a new system that comes standard with WinXP rather than worrying about the pains of an upgrade. This way users don't have to worry about the possibility that a piece of software that is on the computer might not work properly.

But of course it's not necessary to buy a new system to get the full functionality of an OS upgrade. It's perfectly OK, and much less expensive, to purchase the software upgrade and do it yourself, and be prepared to play the patch game.

■ **What Is A Patch?** In order to make a program work properly with the new OS, many users will need to locate a patch, a program upgrade, from either the Microsoft WinXP Web site (http://www.microsoft.com /windowsxp) or a vendor's Web site. The patch is a piece of code that is loaded into your program's existing code in order to

make it work with a newer OS. As mentioned before, you can typically obtain a patch for a misbehaving program from the manufacturer's Web site.

For instance, if your Toshiba notebook keeps going on the fritz and won't turn off after upgrading to WinXP (a documented compatibility issue), then go to the Toshiba support Web site (http://www.csd.toshiba.com) to download a patch to fix the problem.

■ **Be Prepared.** If you decide that you do want to go ahead and upgrade to WinXP, make sure to keep track of the version number and serial number for the applications that generate compatibility issues.

The same applies for hardware. Keep track of the model number if it is causing problems with the upgrade. You will need to present this information to a company in order to get the right patch for your PC. If, for instance, you don't keep track of the version number for a problematic software package, you could end up downloading the patch for another product that might

To see what products the latest operating system is compatible with, consult Microsoft's Hardware Compatibility List.

not fix the problem on your computer. Plus, having the pertinent information on your system's components will drastically cut down the time required to hunt for the right patch.

■ **Check Ahead Of Time.** For people who purchase a new computer with WinXP

installed, there shouldn't be any reason to worry about system compatibility issues unless they decide to install a favorite legacy program that turns out to be problematic. But for anyone considering upgrading to WinXP, there could be considerable compatibility complications.

Most experts agree that one of the best ways to prevent running into headaches while installing the software is to check out your system's components beforehand to see if there could be any conflicts. To that end, Microsoft has created two resources that intermediate (and beyond) computer users should take advantage of before attempting to install WinXP: the Hardware Compatibility List and the WinXP Upgrade Advisor.

Use HCL. When Microsoft first started offering it, the HCL (Hardware Compatibility List) used to be nothing much more than a really big text file. Microsoft has drastically improved the usability of the HCL, however, and users can now access it online at http://www.microsoft.com/hcl to check the database and see if their computer's components are compatible with the latest OS. Users can also view the HCL in its text-only form by selecting that option on the Microsoft Web site.

After accessing the HCL, users can either type in the name of a product to search for or select a product category from a pull-down menu. From there, a grid appears that users can check their components against to see if the products work with various versions of Windows, including WinXP.

To keep from getting overwhelmed by this immense resource, it's probably best to make a list of the products you wish to check on the HCL before accessing it. Because the HCL is updated constantly by Microsoft testers, any products or components that you might have purchased in the last couple of years are probably on the list. When purchasing a new component for your soon-to-be-upgraded system, try and stick with products that Microsoft has already identified as having been designed and tested to meet Microsoft standards for compatibility with WinXP.

Along those lines, to help users identify products that have been tested and designated as compatible with WinXP, Microsoft has devised a plan to allow manufacturers to

Microsoft's Hardware Compatibility List provides users with a database that is filled with components that have already received patches to make them compatible with Windows XP.

display the company's logo on the product box. The logo also denotes other characteristics about a product, for instance, that it will always install and uninstall completely and won't interfere with other system components. The HCL also points out if a product has been approved to display the logo, making it a Windows-friendly product.

Well advised. The other useful tool that can be used before purchasing WinXP is the Upgrade Advisor, an application that users can download free from Microsoft (http://www.microsoft.com/windowsxp/pro/howtobuy/upgrading/advisor.asp) that checks your system hardware and software to see if it meets the system requirements and is ready for upgrade to the new OS. Upgrade Advisor then audits your computer and lets you know the next steps you'll need to take to ensure a trouble-free upgrade.

When running the program, users will see a list of potential hardware and software compatibility problems divided into two different categories: blocking issues (items that would prevent WinXP from installing at all) and compatibility warnings (programs that might not function properly after WinXP is installed). One nice feature is that if Upgrade Advisor is running while connected to the Internet, and if the system being examined requires updates that are available on the Windows Update Web site, the application will automatically locate and install the updates. The Upgrade Advisor is designed to

run directly from the Internet without having to open any additional files or programs on your hard drive. The Upgrade Advisor is currently only available for U.S. versions of Windows, but an international version is apparently in the planning stages.

■ SWPC Seeks Compatibility. Sometimes in life, or in WinXP upgrades, even the most extensive planning doesn't guarantee a future free of complications. So if you've already purchased a copy of WinXP and discovered that your system does, in fact, have program compatibility issues, it should be reassuring to know that Microsoft has identified a number of troubleshooting methods that can be used to help clear the road.

One particularly good article, "How to Troubleshoot Program Compatibility Issues in Windows XP," is available on Microsoft's home page for WinXP. To read the article, go to http://support.microsoft.com, click Search, and type **Q285909** in the Searching The Knowledge Base section.

The most valuable suggestion the article offers to users confronted with compatibility issues is to check the Microsoft Windows Update Web site to see if a fix is available for the application or check the Web site of the program's manufacturer to see if an update or a patch has already been made available there.

Compatibility mode. WinXP also contains a Program Compatibility Wizard that offers users an environment for running

let you know if your system could handle the upgrade version of WinXP rather than the full version.

It should be pointed out that Microsoft recommends that only computer users who have high-speed Internet access should consider using the Upgrade Advisor. The file itself is extremely large and out of dial-up reach (approximately 30MB).

But the silver lining here is that the file doesn't necessarily have to be downloaded to your computer; it can also be

programs that closely reflects the behavior of earlier OSes. This means that if you are having compatibility troubles with a particular component or software application after upgrading to WinXP, you have the opportunity to try running the program as if it were operating on an older platform.

This mode, while not 100% fail-safe, can occasionally let you get around the current compatibility problems that the upgrade might have presented and let you at least run the application. To read more about the wizard, see "Teach Old Programs New Tricks" on page 97.

■ WinXP Compatibility Issues & Fixes. The following is a partial list of software and
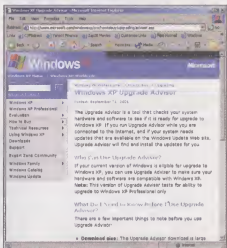
The Upgrade Advisor is a free Microsoft program that checks your system hardware and software to see if it meets the requirements for an upgrade to Windows XP.

hardware, arranged by company, that have been known to generate compatibility problems for many users trying to upgrade a system to WinXP.

Because the tech industry is practically littered with products, however, it's just not possible to list every company that offers a patch or every component that requires one. These are merely some of the more prominent companies with software that has generated compatibility issues.

Adobe. Maker of the popular graphics and multimedia programs Photoshop, Illustrator, and Premiere, Adobe says it "doesn't develop versions of its products to specifically address operating system compatibility issues." Instead, the company addresses WinXP compatibility issues in future versions of their products. So if your copy of Photoshop has

Older versions of Adaptec's Easy CD Creator software are not compatible with Windows XP.

any problems after upgrading to WinXP, you'll have to wait until the next version of the Photoshop software to be able to use it again with the new OS. Right now the only compatibility problems that are popping up are related to difficulties that some peripherals have interacting with Photoshop. Other users have had problems with Adobe's eBook Reader and their Photoshop Elements 1 application.

http://www.adobe.com

Compaq. Compaq has taken the interesting step of offering an upgrade package that includes a software-enhancement CD to combat any compatibility issues that might arise between its products and an upgrade to WinXP. The catch, though, is that to get the CD (and therefore all the necessary upgrades) you have to actually have purchased a computer from them between June 1, 2001 and Jan. 31, 2002. Some patches are available on the company's Web site, but as of this writing they are only for a limited number of the company's pre-June 1 products.

http://www.compaq.com

Hewlett-Packard. Because they offer everything from printers and scanners to PCs and notebooks (don't forget optical jukeboxes), it's inevitable that some HP products are going to require an upgrade in order to be used with WinXP. The company has also created a lot of resources on its Web site to help users figure out which of its products are compatible, even going so far as to create a chart to recommend or dissuade people from upgrading to WinXP, depending on what system the user might have. Because HP has a solid relationship with Microsoft, the current wisdom is that most newer HP products that currently present compatibility problems should be fixed to work with WinXP soon.

http://www.hp.com/pond/windowsxp

McAfee. McAfee, one of the leading virus-protection software companies, has announced that its VirusScan Online is the only McAfee .com Web service currently compatible with WinXP. That means that for people with older copies of McAfee virus protection software, an upgrade is necessary.

http://www.mcafee.com

Roxio. There has been a lot of noise made about the CD burning software that Roxio offers and the compatibility problems that have popped up with the WinXP upgrade. The company's popular Easy CD Creator (versions 3.x and 4.x), which came standard with previous Windows OSes, isn't supported in WinXP, and there are no plans for it to ever be supported. That means that it simply won't work. In fact, the only CD burning software that is fully supported by Roxio is its latest "platinum" version (5.x) that users must purchase for about $100. A 90-day trial version is available to tide people over until they plunk down the money. Although this may seem like a sneaky trick, a few other software manufacturers also appear to be using the WinXP upgrade as a means to force users to upgrade their software. One thing to keep in mind here: WinXP actually contains an application to burn CDs directly, so if you're just looking for a simple utility, spending money to upgrade to Roxio's latest technology isn't particularly necessary. On the other hand, the Roxio software has many more features than the software offered on WinXP, but some testers have reported that even the upgraded Roxio software is buggy and can lock up when users attempt to burn a CD.

http://www.roxio.com

Symantec. The company behind the popular Norton antivirus software has worked closely with Microsoft to ensure that all of its 2002 products are compatible with WinXP. However, none of its older products are compatible and the company has no plans to upgrade them. That means that if you have an older version of one of their antivirus programs, you will need to buy an updated version, which will run you at least $29.95.

http://www.symantec.com/sabu/xp_main.html

Toshiba. A wide variety of Toshiba's notebook computers have presented significant compatibility issues with WinXP. For instance, the notebooks that functioned properly under a previous OS aren't able to go into sleep or hibernation modes or even turn off in some instances. Apparently, turning off the computer either on-screen or on the notebook itself just reboots the system. Toshiba has responded by announcing three waves of upgrade support for its computers. The first two waves will provide fixes for a majority of the systems.

http://www.toshiba.com

■ **Patch Everything Together.** There are a lot of other resources on the Internet to find out about patches that have been created to combat compatibility issues. One particularly good site to check out is http://www.xpsc.net, where people can read what problems other users have discovered.

If you decided that you wanted to take the leap, upgraded to WinXP, and ended up staring at a screen with all sorts of compatibility issues popping up all over the place, at least take solace in the simple fact that any problem that you are experiencing has probably already happened to someone else along the way. Additionally, software companies certainly don't want to lose your business. More than likely, they're going to come up with a way for most recent software applications and system components to function properly. In the rare instances where you are forced to spend money to upgrade a software package because they refuse to offer any free patches, make a mental note and think about seeking out a different company that will be more responsive to users' needs.

All in all, most people who do their homework and look into possible compatibility complications that could result from upgrading their systems to WinXP will end up on top. It just takes a little patience. **LS**

by Andrew Rodgers
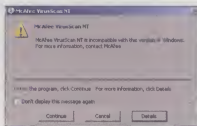
Users who upgrade to the new Windows XP will be unpleasantly surprised to discover that most of the older McAfee virus protection software no longer works properly.

Answer Central

Windows XP Q&A

Q Do I really need to upgrade to Windows XP?

A The answer depends on the user. Because WinXP is based on Windows 2000 technology, which in turn was based on Windows NT and its **kernel** (the main part of the OS [operating system] that handles the most important tasks), current users of Win2000 may find few reasons to upgrade. However, the NT kernel is renowned for its stability. So if you're a Windows 95/98/Me user tired of occasional crashes, WinXP is likely to provide relief.

There are other advantages to XP, too. Fast User Switching makes it easier for multiple users to share one PC without stepping all over one another's Desktop and files. There's a built-in firewall for security against hackers; Microsoft Passport for more convenient, secure e-commerce; and the Files and Settings Transfer Wizard, which helps migrate your files and settings from an old PC to your new WinXP machine. In general, most consumer-level WinXP innovations focus on making online activities easier and simplifying the handling of digital media.

If your Windows world extends to using Microsoft Office, playing games, and surfing the Web, WinXP may not be the upgrade you need. On the other hand, WinXP is easier for novices, more feature-rich and compatible for power users, and will be supported more thoroughly

and for a longer time than previous versions. In general, it doesn't pay to upgrade to each successive Windows version, but upgrading every *other* version seems prudent in most cases.

Q What does "XP" stand for?

A In Microsoft's case, it means "eXPerience," as in the OS enables more user experiences. (Don't confuse this with the XP in AMD's latest Athlon chips, wherein the acronym stands for "eXtra Performance.") The accuracy of this assertion is questionable because most, if not all, of the experiences you achieve using WinXP are equally achievable with Win2000, albeit with more help from third-party software. Perhaps "Windows 2002" wasn't as persuasive enough.

Q Which version is right for me: WinXP Home or Professional?

A Microsoft does know what they can to address the two products to different markets. The differences may appear small, but they are significant. WinXP Professional is a superset of WinXP Home, meaning it has all of the same features as Home plus more of its own. What you'll find in both versions is the new Luna interface, which looks enough like WinMe/2000 to be familiar but adds a lot of streamlining for

less hunting and clicking. Internet Explorer, Windows Media Player, and Windows Movie Maker have all been updated. The Network Setup Wizard has been beefed up, there are new tools for managing multimedia files, and the OS now includes Windows Messenger (complete with audio- and videoconferencing) and Internet Connection Firewall.

As in WinMe, the System Restore function will help you revert to a configuration that predates any corrupting driver or application loads. (If you install something that doesn't agree with WinXP, System Restore will turn back time to before you made that installation.) Not least important, both versions support Remote Assistance, which lets a technician or an experienced friend remotely connect to your PC for troubleshooting.

In WinXP Professional, you get multiprocessor (meaning two CPUs) support, just as in Win2000. Also, whereas any user in WinXP Home has full system rights, WinXP Professional uses the more corporate-appropriate process of using administrators capable of giving specific rights to each user. However, only Pro supports Remote Desktop, a nifty application that lets you control your PC from a remote site a la Symantec's pcAnywhere.

Home Edition also lacks IIS (Internet Information Services), which helps make remote, 'Net-based locations function like local resources. Only WinXP Pro supports multiple languages out of the box and offers the ability to encrypt files and folders straight from Windows Explorer. You'll also find a bevy of enterprise-friendly features covering areas such as remote installation and "roaming" profiles so users can apply their customized settings on any PC in an Active Directory network.

Strangely, Microsoft removed fax support from the default installation of WinXP Home. You can, however, install it from the CD. Unfortunately, the Backup and Automated System Recovery utility is wholly absent from WinXP Home. So if you want integrated tools for recovering from catastrophe, you'll want WinXP Professional.

Q Will my old software run under WinXP?

A WinXP is designed to have wider product compatibility than Win2000, but not so much compatibility that it opens the door to the instabilities inherent in the Win9x platforms. WinXP examines drivers and applications as you install them, searching a database of apps

that are certified as compatible. Usually, WinXP will issue a "soft block" when you attempt to install anything that isn't approved, giving you the choice to stop or continue installation. Some applications are known to be incompatible, and WinXP will "hard block" these, not allowing you to weaken the system's integrity.

The biggest WinXP compatibility hot spot is with DOS programs. When in doubt, consult your application vendor's support site to confirm compatibility. We had to remove WinXP Professional from one test system upon discovering that the PC's satellite modem software was compatible with Win2000 but not WinXP. Don't assume that just because the two OSes use the same kernel that they also run all of the same software. For more on compatibility, read "Teach Old Programs New Tricks" on page 97.

Q Is Microsoft gathering all kinds of personal information about my PC and me when I activate WinXP?

A No, but activation remains one of the most misunderstood aspects of the new OS. As you may have heard, activation is Microsoft's first line of defense against OS piracy. It's important to remember that, unlike buying a stereo or a camera, when you buy WinXP, you're not so much buying a CD as you are a license.

WinXP's license says you get to run the OS on one PC, period. (Office XP's license says you can install on two systems.) Those are the rules until Microsoft chooses to license apps to people rather than machines.

In order to enforce this license and behave as a responsible for-profit company, Microsoft now requires you to activate WinXP, which is an entirely different process than registering, although the two are offered together.

Activation takes a snapshot of your hardware, just enough to identify the basic components. The codes might only reflect "60GB hard drive" as opposed to the more detailed "60GB Western Digital Caviar" followed by model and serial numbers. Activation gathers just enough data to distinguish your PC's configuration from others, then combines the resulting codes with an ID number burned into your copy of WinXP. This information is then either uploaded to Microsoft via the Internet or phoned in by you

to activation staff. You have 30 days to activate before the OS ceases to function.

At no point during activation are you asked for your name, address, phone number, or any other private information. All of that is handled as part of registration, which is entirely optional. In fact, the only specific information activation records about you is your country of residence.

Microsoft has built enough flexibility into activation for you to be able to swap a hard

As attractive as it is powerful, Windows Media Player 8 can do everything from manage your digital music collection to tune in the best online radio to play your DVD movies (with the appropriate third-party plug-in). Microsoft prejudices the application to favor its own Windows Media format over MP3 (again, unless you have the right plug-in), but don't let that sour you on this worthwhile title.

drive or add a card without needing to reactivate. In fact, many users have reported needing to change half a dozen components or more before triggering reactivation. Reinstalling the OS automatically triggers reactivation. Bowing to the tinkering needs of power users, Microsoft allows WinXP to be reactivated every 120 days. Businesses purchasing volume licenses don't have to fuss with activations at all.

Q What's all the privacy-related hubbub about Passport?

A Passport is Microsoft's e-wallet application, designed to let users surf a wide range of sites and services with a single user ID and password. The idea is that it will streamline login and checkout procedures. Passport also is a key in HailStorm, Microsoft's still-unfolding platform that lets users access their information from anywhere on a legion of various devices.

Privacy rights advocates argue that Passport collects too much private information and

doesn't adequately safeguard that data from hacking or abuse. Still, this doesn't change the fact that Passport is only one of many e-wallet apps on the Internet, and Web sites regularly ask for the same user information without providing any better security guarantees than Microsoft's.

Some critics argue that by requiring Passport for Windows Messenger, Microsoft is using unfair leverage to force users into its applications, but, again, Windows Messenger is only one (and definitely not foremost) of several popular messaging apps, including ICQ and AOL Instant Messenger. So far, Microsoft's argument that its approach aims to increase convenience while not excluding the use of third-party solutions still holds water.

Q I've heard that I can't use WinXP to watch DVD movies or rip MP3 files. What gives?

A Both points are true to some extent, and Microsoft's motives are open to speculation. The omission of native DVD video playback functionality seems especially odd, but perhaps Microsoft didn't want to alienate its existing media partners (much less drive them out of business and risk another round of antitrust accusations).

Most DVD-equipped systems bundle third-party software players, anyway, so if you're upgrading to WinXP on a system that already contains DVD player software, WinXP will adopt the existing decoder and play your movies without any problem.

As for MP3 ripping, this may be another case of corporate fear end covering because it's not a big stretch to go from suing applications that promote illegal music copying (as in the recording industry vs. Napster, Aimster, and others) to suing the software vendors that make ripping such files a one-click process.

File formats that support DRM (digital rights management) to prevent illegal use, Microsoft's own WMA (Windows Media Audio) among them, are generally considered to be the wave of the future, even if these rights management features aren't widely used today. This, combined with a fervent desire to promote WMA and not competing formats, may explain why WinXP only supports WMA ripping out of the box.

That said, Microsoft is happy to point you to partners that sell add-on packs to fill in this

missing functionality. At InterVideo (http://www.intervideo.com), for example, you can download the MP3 XPack for $9.95, the DVD XPack for $14.95, or a two-in-one bundle for $19.95. If MP3 ripping is your passion, we remain devoted fans of MUSICMATCH Jukebox (http://www.musicmatch.com), which offers CD-quality ripping even in its free version.

If you're having other DVD-related problems, try using the DVD Troubleshooter by clicking Start, Help And Support, Fixing A Problem (at the bottom left of the page), Games, Sound And Video Problems, and DVD Troubleshooter.

Q The new look of WinXP is driving me crazy. Can I change it?

A Yes. One of the advantages of WinXP is its more customizable interface. Right-click an empty area of the Desktop and select Properties. Click the Appearance tab and change the Windows And Buttons drop-down list to Windows Classic style. In this Appearance tab, you can also select the Advanced button and customize the size, color, and font for over a dozen different Windows elements.

If you want to radically change the Desktop's visual style (Microsoft calls them skins), go to http://www.windowblinds.com and download the shareware version of Stardock's WindowBlinds ($19.95 to register). This utility bestows a huge degree of flexibility, not just in color schemes but in how items, such as toolbars and applications, run from the Desktop. Hundreds of skins are available from companies, including WinCustomize (http://www.wincustomize.com) and WindowBlinds. For more about changing WinXP's appearance, see "Tweaking Luna" on page 104.

Q During system boot-up, I keep getting a "NTLDR is missing, Press any key to restart" error message, and I can't get into Windows. How do I fix this?

A According to Microsoft, this stems from upgrading a FAT32 (File Allocation Table, 32-bit) -based Win9x PC to Win2000/XP, although we managed to also obtain the error when attempting a dual-boot Win2000/XP configuration on a blank hard drive.

To fix this problem in a Win9x upgrade situation, restart the PC booting from a Win9x

startup diskette. At the A: command prompt, type sys c: to transfer the basic system files, including NTLDR, to the hard drive's root directory. This replaces the inaccurate information contained in the FAT32 BIOS Parameter Block. Now restart the system normally into Win9x and try the XP installation again. In our dual-boot situation, we were able to work around the problem by simply copying the NTLDR file from the Win2000 Startup disks into the root directory.

Q Should I set up a dual-boot WinXP configuration? If so, how?

A If you're upgrading from a previous Windows version, it may not be a bad idea to try a dual-boot configuration, just in case some of your applications turn out to be incompatible. Yes, this means you'll have to install the apps twice, but it beats facing downtime with a corrupted system.

If you still think Instant messaging is about bouncing text snippets back and forth with friends, check out the new Windows Messenger. Now with text, voice, and videoconferencing, Messenger is easier and more useful for a wide array of tasks than ever before.

First off, we recommend that you install each OS onto its own drive volume. This could be separate partitions (C: and D:, for instance) on a single hard drive, but preferably you want to install each OS on a separate hard drive. This way, if something goes afoul with the disk itself, you haven't impacted the other drive.

The most important thing to know is that you need to install the earlier OS before installing WinXP. Doing it in reverse order is simply asking for a nightmare. Also, if your first OS is DOS, Windows 3.x, Win9x, or WinMe, pay close attention to the file system

used on your drives. Earlier versions probably don't support the NTFS (NT file system) structure used in WinXP, which means your boot volume will need to be formatted with FAT16 or FAT32 as necessary. If you use compressed drives, know that WinXP will only install to volumes using the NTFS compression utility.

With the earlier OS in place, WinXP's lengthy installation process automatically handles the dual-boot configuration so that you'll be presented with the choice of OSes when you boot the PC. You can change the default dual-boot selection by clicking Start, Control Panel, and System. Under the Advanced tab, select Startup And Recovery, then Settings. In System startup, you'll see the Default OS list. Simply make your selection here and, if you want, change the number of seconds the boot menu is displayed before executing the default OS.

Q I just installed a new program into WinXP and now this balloon message keeps telling me that new programs are installed. Like, duh! How do I make the messages leave me alone?

A Easy. Right-click the Start button, click Properties, Customize, and the Advanced tab. Uncheck the Highlight Newly Installed Programs option. This feature may have been implemented to help people working in a multiuser environment know what other users are doing, but we agree that it's dang annoying.

Q Is it true that XP will lose some of my data if I reinstall or upgrade the OS?

A Possibly, yes. The problem is inherent to systems that come installed with either WinXP Home or Professional. You may lose data in the All Users folder if you reinstall WinXP in the same Windows folder during an upgrade, repairing Windows as booting from the CD-ROM, or upgrading a vendor-installed version of WinXP Home to WinXP Professional. A buggy wizard generates a file in the Windows\System32 folder called Undo_guimode.txt. To eliminate the data loss problem, delete this file before proceeding with the upgrade, reinstallation, or repair. [LS]

by William Van Winkle

Track Your Steps

Use The Event Viewer To Keep An Eye On Your PC

It's good to know that every time your computer goes haywire, at least somebody is paying attention. Built into Windows XP is a new functionality that enables users to manage a series of event logs that record happenings on their computers and provide audit trails when something goes wrong.

An "event," as described by the WinXP support manual, includes "any significant occurrence in the system or an application that requires users to be notified of an entry to be added to a log."

That means that any time a program loads incorrectly or a file gets deleted, WinXP makes a note of it in a log file in case the user or a technician needs to troubleshoot the system.

These event logs record three different things: application, security, and system events. The application log tracks events that were logged by applications or programs. This is where, for instance, a database program might record a file error.

The security log, which is turned off by default, records valid and invalid logon attempts and events related to resource usage, such as creating, opening, or deleting files. The last type of log file is the system log, which records events flagged by WinXP system components, such as the failure of a driver to load during startup.

■ **Where To Go.** To view the event logs or manage what they record, use the Event Viewer. It's the program that maintains all the logs about programs, security, and system events on your computer. The service starts up automatically when you turn on Windows. And although anyone can view the application and system logs, only administrators have access to the security logs. To open the Event Viewer program, click the Start menu, Control Panel, Performance And Maintenance, Administrative Tools, and double-click Event Viewer.

Info keeper. In addition to a general description, each event log entry contains other useful pieces of information. For instance, it records the date and local time the event occurred, a number identifying the particular type of event, a classification of the event severity, and the source of the software that logged the event. The latter could be a program name (SQL Server, for instance) or a component of the system or even of a bigger program, such as a driver name.

The event logs also provide the username of the person on whose behalf the event occurred and the name of the computer where the event occurred. And although administrators who

are connected to a network with many different computers and users are the ones most likely to use this information, it is actually available to everyone. It just won't do the average computer user sitting at home in his living room much good.

Typically, the most important and useful piece of information is the event description, which indicates what happened or the significance of the event. Depending on the event type, the format and contents of the event description vary. But the Event Viewer will display five different types of events.

Event types. The first event type is an error or significant problem, such as the loss of data or functionality. If a program fails to load during the startup phase, for instance, an error event will be recorded in the log. The second event is a warning, which isn't necessarily significant but might indicate something that could be troublesome in the future. For example, when disk space is running out, a warning event is recorded.

An information event is the third type the Event Viewer displays. It describes the successful use of a program, driver, or service. When a program loads properly, for instance, an information event is logged.

The final two types of events that are displayed are success audits and failure audits. These events describe the outcome of when users try and log on to the system.

More information. Additionally, each logged event includes a URL (uniform resource locator) link to Microsoft that can offer additional information about the event. After clicking the link, information about the event is sent to Microsoft in the form of a database query that is used to locate much more detailed information from the Microsoft Web site.

Should you be worried that Microsoft is collecting personal information when the event query is sent in? Not according to the Event Viewer help file. The data collected for the query string includes information that describes the type of event message, Registry source, time and date, Microsoft product name and version, and the file name and version, according to Microsoft. Through its help files, the company also states that the collected data is limited to only what is needed to retrieve

more information about the event from the Microsoft Web site Knowledge Base. Usernames and e-mail addresses, names of files unrelated to the logged event, and any other forms of information are not collected.

What It's Good For.

One of the more important attributes of event logs is that careful monitoring of them can help users predict and identify the causes of system problems. The help topics for the Event Viewer explains it this way: "If log warnings show that a disk driver can only read or write to a sector after several retries, the sector is likely to go bad eventually. Logs can also confirm problems with software. If a program crashes, a program event log can provide a record of activity leading up to the event."

For future reference, individual log file entries are created in Windows XP every time the computer registers an event that it thinks is worth keeping track of.

When it comes time to troubleshoot your computer by using the event logs, Microsoft offers a couple first-step suggestions. First of all, it is important to note the event IDs. These are the numbers located in the top half of an event record that match a text description in the log files. If it is necessary to call a product support representative at Microsoft, you can use these numbers to understand what happened on your computer.

If you suspect that the problem might be coming from one of your hardware components, try filtering the system log to show only those events that were generated by the component. Either select the Source column heading in the listing of log files to arrange the sources alphabetically or select Filter from the View menu. In the window that appears, you can change the order and selection of what items are displayed.

For instance, by selecting a specific component from the Event Source drop-down menu, you can display only the event log entries by a specific source. That way you can find other instances of the same event and judge the frequency of the problem.

If you suspect the problem might be coming from one of your hardware components, try filtering the system log to show only those events that were generated by the component. Either select the Source column heading in the listing

of log files or Filter from the View menu. From there, the order and selection of what items are displayed can be dramatically affected. That way you can find other instances of the same event and judge the frequency of the problem.

Manage The Logs.
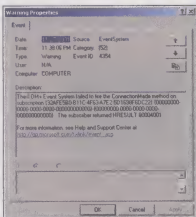
Because the application and system logs are actually started automatically every time you start up your computer, it's possible for them to build up a lot of information without users even being aware of it. In fact, logging only stops when the event log becomes full and cannot overwrite itself, most likely because it has reached its space limit and someone has set it to only allow items to be removed manually.

If you anticipate using the event logs on your computer, it is important to check out the logging parameters for each kind of log ahead of time. To look at or edit the parameters in the Event Viewer, right-click the type of log you wish to manage and click Properties. From there, you can set the Maximum Log Size and specify whether the events should be overwritten or stored for a set period of time. The default logging policy is to overwrite the logs as needed.

In your hands. If you find that your minimum settings are not enough and your event log keeps filling up so that no more events can be logged, there are a few steps you can take to ensure your computer keeps track of everything you want. For starters, you can clear the log by manually deleting out old information. Click the log you want to erase and select Clear All Events from the Action menu.

Another way to free up the logs and allow records to be overwritten is to reduce the

One way of managing the list of individual events that were logged is to change the way they are displayed.

amount of time that an event is kept. This can also be managed by right-clicking the log, selecting Properties, and choosing Overwrite Events Older Than x Days. You can also free log space by increasing the maximum size that is set on the system. By default, the maximum log file size is set to 512 KB.

Archive the files. The last and probably most intensive way to manage the event logs is to manually archive them at periodic intervals. When archiving old information, you are able to save the data in one of three different types of files, but Microsoft recommends that you only use one of the three.

When you archive an event log, you can save it in one of three file formats: EVT (log-file format) enables you to view all the archived log information again in the Event Viewer, TXT (text-file format) lets you view the data in a word processing program, or CSV (comma-delimited text-file format) enables you to use the information in a database or spreadsheet.

The event description is always saved when you archive, but each event log also provides some binary data associated with events that can help a developer or technical support specialist identify the source of a problem if you need help. However, the only way you can retain that information is to archive your logs as EVTs. To archive the logs, go to the Action menu in Event Viewer and click Save Log File As.

Stay On Top Of Things.

By actively monitoring your file logs, saving the information into a separate file, and clearing out the old information, you can ensure that your file logging never bumps its head against its set ceilings. By taking the time to learn about event logs now, you increase the chances you'll be able to preserve your important files and information in the event of a system crash. So when you are sitting at a malfunctioning computer, cursing it under your breath, and madly clicking anything you think might help, keep the event logs in mind as a good place to start.

by Andrew Rodgers

The Pages To Peruse

Books About Windows XP

Naturally, Microsoft publishes lots of books about their products. (And some of those books are very good indeed; Microsoft Press has an excellent reputation in the print publishing industry.) Of course, many other publishers also release books about those products. In fact, writing books about how to get the most out of Microsoft's software has become something of a cottage industry. Some of the publications are very helpful, while some leave something to be desired. Here are some of our favorite books about Windows XP.

"Step by Step Home Networking With Microsoft Windows XP," by Matthew Danda, Heather T. Brown, and Heather Galioto. Microsoft Press, ISBN: 0735614350, $24.99. A pretty straightforward guide to setting up a home network with WinXP. The step-by-step format is a great help for newbies. This work may be a little too basic for readers with experience in networking.

"Microsoft Windows XP Inside Out," by Ed Bott, Carl Siechert, and Craig Stinson. Microsoft Press, ISBN: 0735613826, $84.98. If you can only purchase one book about WinXP, we recommend that it be this one. The "Inside Out" series is an excellent one, and this title is no exception. Complete (but easy-to-understand) explanations of just about every WinXP-related topic you can think of. The book assumes a basic familiarity with Windows, but if you've used earlier versions, you'll find it understandable and useful.

"Mastering Windows XP Professional," by Mark Minasi. Sybex, ISBN: 0782129811, $39.99. Minasi has written a ton of books about Windows, all of them good. This one's no exception. Although it starts off with the basics, it quickly gets into the more complicated aspects of WinXP Pro. This is as it should be: WinXP Pro is a serious OS (operating

system), meant for networking and workgroup management, and there's just no way to cover those aspects of WinXP without getting technical. Still, the writing is as straightforward as one can find, explanations lucid and examples relevant. At 1,200 pages, it's no lightweight, but then, neither is WinXP.

"How to do Everything with Windows XP," by Curt Simmons. McGraw-Hill Professional Publishing, ISBN: 00719300X, $24.99. This series is one of our favorites, and the book is well organized, easy to understand, and full of useful and accessible information. Lots of screen shots and illustrations.

"Microsoft Windows XP Step by Step," by Online Training Solutions Inc. Microsoft Press, ISBN: 0735613834, $29.99. A very easy-to-understand book for beginners. This is essentially a programmed text, with step-by-step instructions that take the reader through the WinXP basics. Includes a CD-ROM with practice lessons and demos.

"Alan Simpson's Windows XP Bible," by Alan Simpson and Brian Underdahl. Hungry Minds Inc., ISBN: 0764548603, $39.99. Offers comprehensive (and comprehensible) coverage of just about every WinXP-related topic, feature, and function. An excellent resource for when you find yourself asking, "How do I . . . ?" The answer is almost certainly in this book.

"How to Use Microsoft Windows XP (With CD-ROM)," by Walter J. Glenn. Sams, ISBN: 0672322560, $29.99. Aimed largely at beginners, this 300-page book concentrates on features new to WinXP, presenting them in a clear and understandable fashion. Definitely not for techies, the book is a great intro to the OS.

"Effective Executive's Guide to Microsoft Outlook 2002," by Jason Gerend, Charles Bermant. Redmond Technology, Inc., ISBN:

"Microsoft Windows XP Inside Out" is a complete compendium of information about WinXP that's easy to understand.

1931150044, $24.95. Despite the title, this book is a must-have for *any* serious Outlook user, even those of us who are not executives. It presents information about Outlook 2002 from the user's perspective, and focuses on typical business goals and how to use Outlook to achieve them. The book's straightforward and crisp tone make for easy reading, without a lot of irrelevant chatter or overly technical jargon.

"Windows XP Home and Professional Editions Instant Reference," by Denise Tyler. Sybex, ISBN: 0782129862, $24.99. A highly readable alphabetical listing of WinXP features, functions, and tips. Relatively small, as these things go (around 500 pages), but packed with solid, useful information. A good investment.

"Windows XP Secrets," by Curt Simmons. Hungry Minds, Inc; ISBN: 0764548522, $39.99. At press time, this book hadn't yet been published, but it should be available by the time you read this. However, based on previous "Secrets" books from this publisher, we're comfortable recommending that you check it out. The series provides an insider's look at the subject (in this case, WinXP), covering undocumented features, functions, and shortcuts. Geared toward improving performance and productivity, the book is probably not suited for beginners.

■ **For More Information.** There are a ton of WinXP books out there. These are just a few of our favorites, and they certainly represent a good starting point. If you'd like even more resources, check out "Our Picks To Click" on page 140. LS

Our Picks To Click

Windows XP-Related Web Sites

As more people adopt Windows XP, the buzz (good and bad, but mostly good) is growing. And as the buzz grows, the number of Web sites dedicated to the new OS (operating system) is also growing. We picked some of our favorites to share with you.

When seeking information about WinXP, why not go to the source? Check out Microsoft's WinXP page at http://www.microsoft.com /windowsxp. Naturally, this site is going to exhibit a certain amount of bias, but this is a very complete, informative site. And, while the companion site at http://www.microsoft.com /windowsxp/expertzone is a bit more technical, it's a great place to read what columnists, experts, and users are saying.

You'll also want to take a look at a group of Microsoft-sponsored WinXP newsgroups located at http://communities.microsoft .com/newsgroups/default.asp?icp =windowsXP. In spite of the fact that Microsoft sponsors these, no one in the group seems bashful about complaining or asking tough questions.

And speaking of Microsoft-sponsored WinXP sites, the company's set up a Web site at http://www.microsoft.com/windowsxp /expertzone/tips devoted to tips for WinXP experts. Although these tend to deal with more sophisticated issues and features, the tips are very straightforward and understandable, even for newbies.

Microsoft has always been very good about documenting its products and sharing those documents with users. (Even the documents that deal with bugs and other problems.) The best place to go to check technical notes dealing with WinXP is Microsoft's Knowledge Base, located at http://support.microsoft.com. This is also a great place to find patches, updates, and other downloads.

If you're a *Smart Computing* subscriber, don't forget to look at the *Smart Computing* Web site (http://www.smartcomputing .com). Scroll down to the search window, then do a phrase search on **Windows XP**. You'll turn up a bunch of articles about or related to the new OS. (Nonsubscribers can search and view the results, but will be able to read only parts of the articles.)

Doug Knox's site (http://www.dougknox .com) is a gold mine of well-written, useful tips and tweaks for all versions of Windows, including XP. It even includes what might be considered "auto-fixes," in that Doug has put together small VB (Visual Basic) programs you can download; they will implement the fixes for you. (Doug is a well-respected Microsoft partner, but as a general practice, you should still scan any programs you download for viruses.)

For a good dose of general Windows-related news, go to the WinPlanet Web site at http://www.winplanet.com. The site includes news, reviews, opinion pieces, and downloads, all laid out in a sensible and easy-to-use fashion. A good place to check out if you're looking for Windows information. A check on

Microsoft has its own "Windows XP Expert" site, a great place to find advanced tips, tweaks, and articles.

its site-wide search engine yielded more than 150 related articles.

If you're installing a WinXP upgrade, odds are you're going to run into compatibility problems with some of your existing hardware and software. Most of the time, those problems will be related to out-of-date drivers. (For example, neither the Roxio drivers for burning MP3s to CD-ROM nor the Acer scanner drivers will work with WinXP.) Sooner or later you'll find yourself scouring the Web for driver updates. The first place to check is with the manufacturer, but if you're not having any luck there, the next place to look is http://www.driverguide.com. The site includes a company/driver database so, in addition to locating specific drivers, it can also help you find your manufacturer's driver site.

Need more info about WinXP's accessibility options? The first place you should go is

http://www.microsoft.com/enable. Microsoft seems committed to producing and disseminating enabling technologies, and this site provides news, articles, white papers, tutorials, and disability guides.

WUGNET (the Windows Users Group Network) is a great place to find information about computing in general and Windows in particular. Go to http://www.wugnet.com to find reviews, downloads, and tips.

To find a ton of WinXP tips and tweaks, go to http://www.tweakxp.com/tweakxp. The tips are categorized for easy searching: Internet, user interface, hardware, programs, etc. For example, a search on speed resulted in six different performance improvement tweaks to try out. Very cool.

There's a downside to everything. If you'd like to find out about anything negative that users might be saying about WinXP, go to http://computergripes.com/WindowsXP.html. This is a listing of alleged problems (bugs, dislikes, complaints) folks have run into with WinXP. Some of this is subjective, of course. (Techies, for example, tend to dislike the default Luna theme, which they see as "cartoonish.") We have no way of verifying the accuracy of most of these, but they make interesting reading.

■ **For More Information.** To find out more about WinXP, these Web sites listed should certainly get you started. If you'd like even more resources, check out "The Pages To Peruse" on page 139. Remember that the Web is constantly evolving. Web sites come and go rapidly, and the ones that stay change almost daily. We can't be responsible for the content of the sites listed above, nor can we take any responsibility for any of the links these sites may contain. **LS**

DOS (Disk Operating System)—(Pronounced doss.) Generally, any computer OS (operating system) that must be retrieved from a disk drive when the computer is booted. Specifically, DOS is an early operating system sold primarily by Microsoft Corp. and IBM. In the 1980s, IBM hired Bill Gates to create an operating system for a new line of PCs. Gates and his fledgling company purchased the rights to a simple OS (operating system) manufactured by Seattle Computer Products. Gates used this operating system as a template for the operating system he would produce for IBM.

driver—A program that allows a hardware peripheral, known as a device, to communicate with a computer. Some drivers, such as those for the monitor and keyboard, usually come with the computer, while others, such as those for a CD-ROM drive or a sound card, come packaged with their corresponding device. Drivers, as well as updates for the drivers, also can be obtained from the manufacturer of the component.

GUI (graphical user interface)—(Pronounced gooey.) A GUI uses graphical symbols, called icons, and menus to carry out commands, open files, and select options. The GUI can be operated with a mouse or a keyboard. It is designed to be easier to use than a character-based interface, such as DOS, which requires exact commands to be typed at a prompt. Popular GUIs include the Microsoft Windows and Macintosh OSes (operating systems).

kernel—The main part of an operating system. The kernel handles the most basic, but most important tasks, such as managing the computer's resources, starting programs, and keeping time.

LCD (liquid-crystal display)—A flat, lightweight display technology used in calculators and notebook computers. Special molecules in the screen have the ability to bend and twist light to create desired images. There are monochrome LCD displays, which appear gray, and there are color LCDs. The three basic types of LCD displays are passive-matrix, dual-scan, and active-matrix. Active-matrix displays look the best, but they are much more expensive than dual-scan and passive-matrix displays.

OEM (original equipment manufacturer)—A company that produces fully manufactured computers and adds hardware, software, and its name to a product. The OEM then sells the system as its own.

operating system—Software that controls a computer and its peripherals. Early OSes, such as DOS and Unix, left a great deal of the operation to the user, but later OSes, such as Windows XP, handle many of a computer's basic functions.

patch—A piece of code inserted into software to temporarily fix a defect. While most users do not consider a patch to be a shortcut or a shabby way to fix a problem, adding too many can make a program difficult to maintain. Programmers often create patches to fix problems and add features to a program during the timeframe when users are awaiting the release of a new version of the program that already includes the "patched" corrections and new features.

PCMCIA (Personal Computer Memory Card International Association) cards—A trade association founded in 1989 by a group of computer manufacturers, the PCMCIA established the PC Card standard, which has greatly expanded the potential capabilities of portable computers. PCMCIA cards, otherwise known as PC Cards, are credit-card-sized devices that offer everything from expanded memory to modem connectivity to network adapters.

Product Activation—Product activation is Microsoft's latest authentication technique. After installing new software, users have a limited amount of time to activate the software. Activation can be done over the Internet and loosely ties your software to your hardware. According to Microsoft, the system is flexible and you can change a number of components without reactivating your software. Reactivation can be done at any time by calling Microsoft. Product activation is required for Office XP and Windows XP.

Safe Mode—A special Windows (Win9x and later) startup mode that lets the system launch with minimal hardware support in the event of hardware or network configuration problems (often brought on by newly installed devices that conflict with existing ones). In Safe Mode, Windows offers only mouse, keyboard, and VGA (Video Graphics Array) support, letting users troubleshoot problems that would otherwise prevent Windows from running. If a problem exists, Windows will automatically launch in Safe Mode.

Unix—A powerful operating system developed by AT&T Bell Laboratories in 1969 and used primarily by universities and midsized businesses. Written in the C programming language (which is popular for PC use because it requires less memory than other languages), this multiuser, multitasking operating system was designed for both large mainframes and minicomputers. It can be used on many platforms and can run a wider variety of hardware than other operating systems. This operating system is more popular for workstation computers on networks rather than individual PCs.

UPS (uninterruptible power supply)—A generator connecting a PC to the power supply that provides backup power for a computer system in case of a power outage (blackout), brownout, or power surge. A UPS contains a battery and provides power for a short time, usually long enough for the original power source to be restored or for users to save their work to their hard drive and safely shut down the system. Many UPSes now are bundled with software packages that can automatically save work and power down the system if the user is away from the PC when the outage occurs. Two types of UPSes are available. One, an SPS (standby power system), or offline system, monitors power line activity and will switch the system to battery power if something goes wrong. This switch can take several milliseconds, stopping power from traveling to a PC during this time. The other, more expensive option, an online UPS system, will give a PC constant power from an inverter or battery, even if a problem is found in the lines.

wizard—A feature that provides step-by-step instructions to lead users through certain tasks in applications. Unlike online help menus, which often must be read before executing a task or printed out, wizards use dialog boxes that walk users through each step of a process.

Xerox PARC (Palo Alto Research Center)—(Pronounced park.) The site of vital computer-related research center in California beginning in the 1970s and continuing today.

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